Virginia Medical Monthly

Official Publication of the Medical Society of Virginia

Vol. 63, No. 4.
WHOLE No. 1009.

RICHMOND, VA., JULY, 1936

$2.00 A YEAR
25 CENTS A COPY

THE DIAGNOSIS AND TREATMENT OF CANCER OF THE LARGE BOWEL.*

J. Shelton Horsley, M. D.,
Richmond, Va.

When we consider the enormous toll that cancer is taking of human lives, and that the number of deaths appears to be increasing every year, it challenges our attention to devise ways and means of arresting this terrific increase in mortality. In 1933 there were more than 128,000 deaths from cancer in the United States. This is about double the number of deaths from cancer recorded thirty years ago, and while more accurate statistics and better diagnoses undoubtedly account for some of this increase, it does not give a satisfactory explanation for all of it. The fact that human life has been prolonged makes more individuals subject to cancer. It is roughly estimated that there are three living patients with cancer to every death from cancer, which would make a total of approximately 400,000 cases of cancer in the United States today.

The external cancers of the skin, mouth, nose, throat and cavities that can be readily inspected are often discovered in the early stages and cured. These cases, of course, do not reach the census reports and are undoubtedly far more common than the internal cancers of the gastro-intestinal tract. It is cancer of the stomach and bowel, however, that looms greatest in the death rate. During 1933 the deaths from cancer of the gastro-intestinal tract, including the anus, liver and pancreas, were 63,174. Of these, 12,972 deaths were caused by cancer of the intestines. These figures must serve to impress upon us the seriousness of the cancer problem and to emphasize the necessity of reducing the death rate from this scourge.

There is no difficulty about the cure of cancer if it can be taken at an early stage. The trouble is in making an early diagnosis. Irradiation by radium or X-ray, or surgical excision, or a combination of these, is usually an effective cure if the cancer is treated early. Cancer very rarely gives pain in the first stages, and cancer of the gastro-intestinal tract is almost always quite far advanced before the patient is submitted to treatment. In cancer of the colon the prospects of cure and of early diagnosis are usually better than in cancer of the stomach, because the lymphatic circulation is not so abundant, metastases are usually later, and symptoms often are exhibited earlier than in cancer of the stomach. As in cancer of the stomach, however, the only treatment for cancer of the large bowel is surgical excision. To be sure, in the anus and rectum irradiation either by radium or X-ray is often helpful and in a few cases is apparently curative. However, some radiologists, such as Max Cutler, believe that the treatment of cancer of the rectum and anus should be primarily surgical and irradiation should be reserved for inoperable cases or as an adjuvant to surgery. In some instances radon implants in cancer of the lower rectum in connection with X-ray treatment and followed later by excision, unless the growth seems to improve very promptly, might be indicated. Above the lower rectum, in the terminal sigmoid and in the colon, excision is the only reliable treatment.

There are two methods of reducing mortality from cancer of the large bowel: One is to make an early diagnosis, which is extremely important; the other is to devise means of curing cases that are advanced when they are first seen. Too frequently the surgeon has his first introduction to a patient with cancer of the colon when there is a

*From the Surgical Department of St. Elizabeth's Hospital, Richmond, Va.

Read before the sixty-sixth annual session of the Medical Society of Virginia, at Norfolk, October 15-17, 1935.

large mass or a big ulcerating area and adhesions, and if it be his policy to keep down the operative mortality rate to a minimum in such cases they may be only treated in a palliative way without any attempt at radical operation. It is this latter type of cases that demands the surgeon's attention even more than the first type, because the operation that is devised to cure advanced cases should certainly be effective in the early cases. This is very similar to the treatment in cancer of the breast; a radical operation for an early cancer of the breast is as much indicated as for a more advanced lesion. In the first class of cases the radical operation will produce a large percentage of cures, whereas a local operation will produce only a small percentage. But no one will deny the advisability of doing a radical operation on a fairly advanced cancer of the breast. So, in cancers of the large bowel our methods should be tuned to the advanced cases with the assurance that if even a small percentage of well-developed and advanced cases are cured by a certain type of surgical procedure, the earlier cases similarly treated will have a much larger percentage of cures. We shall have to gauge our methods, then, by the more difficult cases. To be sure, in these far-advanced cases in which there may be a question of whether operation is worth while, the mortality rate will be very high, but the merit of saving even 20 or 25 per cent of such patients against an assured mortality rate of 100 per cent without such operation is obvious.

As for the diagnosis, it is important that every patient with secondary anemia, with indigestion, with irregularity of the bowel habits, or symptoms of obstruction or of passage of blood, mucus or pus from the bowel should be investigated carefully. Cancer of the lower rectum can be diagnosed in a large percentage of cases by digital examination with a glove; by using a glove at least a half-inch more of the rectum can be explored than by using a finger cot. A proctoscopic examination is also essential and will reveal growths in the terminal sigmoid. A large percentage of malignant growths in the large bowel spring from polyps or apparently benign tumors, or from old chronic ulceration. This has been verified by proctologists who have actually observed polyps that are apparently benign and later undergo malignant degeneration. Not infrequently, too, the growth that appears to be benign will show distinctly cancerous tissue in some portion.

The symptoms of cancer of the right colon are often different from the symptoms of cancer of the left colon. In the right side the absorption of fluid is rapid, whereas in the left colon the function is chiefly that of a reservoir. A fungating mass which is necrotic and produces readily absorbable toxic products in the right colon will often cause an anemia difficult to distinguish from a pernicious anemia. In any anemia whose cause is not obvious the gastro-intestsinal tract should be well examined. Slow bleeding from a peptic ulcer or from a polyp in the stomach or duodenum, or an ulcer or cancer in the right colon, has been so frequently found among the causes of anemia that lesions in these regions should never be overlooked when pronounced anemia occurs, particularly in an individual over thirty-five years of age.

In the left side of the bowel frequently obstruction from the usual cancerous stenosis is the first symptom, but before that is evident the patient may often complain of an excessive amount of gas, a rumbling, and some tympanitis and distention. I have seen cases of the "napkin-ring" type of obstruction on the right side, and a papillomatous type of carcinoma that bleeds freely and is soft may be found in the left colon. These occurrences, however, are not sufficiently frequent to make them the rule instead of exception. It is doubtless more common to find a fungous or ulcerative type of carcinoma in the left colon than a "napkin-ring" cancer in the right, so that no rule of thumb is satisfactory in these cases.

When a lesion of the large bowel is suspected and the rectum and lower sigmoid have been shown by digital and proctoscopic examinations to be free from cancer, a careful X-ray examination should be made. Such examinations should be made by a roentgenologist who is trained in gastro-intestinal work. Not infrequently we may be able to secure a satisfactory demonstration of foreign bodies or fractures from a roentgenologist who has not had sufficient training in gastro-intestinal diagnosis to make his opinion in this latter field reliable. The roentgenologic diagnosis of the terminal sigmoid is particularly difficult because of the loops of bowel that overlap this region and may make a filling defect here inconspicuous.

To sum up the situation, we may say that any patient, particularly a man, with an unexplained anemia or a change in his bowel habits from being regular to occasional constipation, and this frequently succeeded by a slight diarrhea or by straining at stool with unproductive bowel movements and the passage of merely a little mucus and pus, should immediately be considered a suspect for a malignant lesion in the large bowel. Naturally, the ordinary colitis or an ulcerative colitis should be differentiated, but it must be recalled that many cases of cancer follow ulcerations of the colon, and the fact that the patient may have suffered from this condition for some time should not blind us to the possibility of malignancy. Of course, when the ulcer is large or the necrosis extensive, local peritonitis and tenderness and often a palpable mass in this region will occur. This does not necessarily mean, however, that the cancer itself has involved the peritoneal coat, but that the inflammation has caused peritonitis and pain.

In suspected lesions of the colon if there is any indication of obstruction there should be no barium meal given by the stomach, because it may increase the tendency to obstruction, but roentgenologic observation of a barium enema should be relied upon.

As for the treatment, with the exception of cancer in the lower rectum or anus where irradiation in the form of radium implants or X-ray may be helpful or occasionally curative, the generally accepted treatment is excision of the growth. Even in the lower rectum and anus, surgical excision with the electric cautery preceded often by some form of irradiation gives the best chance of cure.

The operative treatment must be adapted to the physiologic function of the colon, which varies from one side to the other, as has already been indicated, and also to the nature of the lesion and the condition of the patient. These patients are usually in middle or old age, and as a rule they have been suffering from the disease for many months and sometimes for several years. They are often poor surgical risks, with impaired kidneys, disturbed nutrition, and not infrequently with cardiovascular disease.

All of these angles must be considered, and it is better to be over-cautious in the preliminary preparation in order that a more radical operation may be done if found necessary, then to have the patient in such a condition that when the operation appears to be much more dangerous than had been anticipated there is but little background of resistance. If the growth is on the right side, preparation for a few days with salt solution enemas and with a low residue diet, an abundance of fluids, fruit juices, carbohydrates, especially candy, is advisable. It is unwise, however, to limit the diet too strictly, because what is gained by decreasing the residue in the large bowel may be more than offset by failing to maintain the patient's nutrition by a well-balanced diet. The patient should have an abundance of fluids, preferably by mouth, but reinforced if necessary by intravenous injections of 5 per cent dextrose in Ringer's solution. Intravenous fluids should be given cautiously because these patients frequently have some cardiovascular disease and an additional sudden strain in the volume of the blood may be serious. It would be best to give intravenous fluids slowly, at a rate of not more than 100 c.c. an hour for about ten or fifteen hours at a time. If this tends to elevate the blood pressure materially it should be abandoned, and resort had to hypodermoclysis, assuming, of course, that the patient is not absorbing a sufficient amount of fluid by mouth. It must be recalled that in lesions of the right colon which we are now considering, the portion of the bowel whose chief function is absorption of fluids is partly out of commission and must often be reinforced by parenteral methods. Occasionally a transfusion of blood may be indicated, though, unless the hemoglobin is below 60 per cent, it would be wiser to reserve transfusion of blood until after the operation, when the patient may have mild shock and when the condition of the dilated blood vessels is such that they will take up the additional fluid without the strain that would occur before operation. At any rate, a donor should always be matched and in readiness for use after the operation.

The question of anesthesia is one to be seriously considered. In operation upon the right colon spinal anesthesia may be used, though the anesthesia zone must extend up to the costal margin in order to be effective. Not infrequently this is a dangerous procedure in these patients, and the combination of local anesthetic and ethylene gas is often satisfactory. If the patient is given a hypodermic injection of a combination of morphine, hyoscin and cactin, what is known as a No. 1 tablet, the operation may often be done with a local anesthetic.

XUM

In cancer of the right colon it may be difficult to decide before opening the abdomen whether the operation should be completed in one stage or in two stages. It would be best to make the incision along the inner portion of the right rectus muscle, having it as long as necessary to produce full exposure. If the growth in the colon is large and if the mesentery is short, a two-stage procedure is preferable. Coprostasis is provided by small rubber bands passed through the mesentery of the bowel several inches distant from the proposed point of incision in the bowel. The ileum is divided about 8 or 10 inches from its termination with the electric cautery between two clamps, and both ends are thoroughly seared. The lower end is closed with inverting sutures. The upper end is brought to the under surface of the transverse colon near the midline, after lifting up the omentum. A pouch of the transverse colon just beneath the omentum is caught by two forceps about ½ inch apart, drawn out strongly, and the base of the pouch is clamped with a Kelly pedicle forceps. The pouch is cut away with the electric cautery, thoroughly charring the bowel in the grasp of the pedicle forceps. A running basting stitch of silk or linen is placed between the under side of the stump of the ileum and the colon just below the clamp. A similar suture is placed between the upper side of the stump of the ileum and the colon just above the pedicle clamp. These sutures are drawn taut while the clamps on both the ileum and the colon are removed. The ends of the sutures on each side are tied together. This line of sutures is reinforced by a series of mattress sutures of fine chromic catgut whose long ends are passed through the adjacent omentum for additional safety. About ten days or two weeks later the cecum and right colon are dissected free and the transverse colon near the anastomosis is divided with the cautery between two forceps and the end inverted.

In such cases it is impossible to reduce the bacterial contents of the bowel by making an enterostomy, and this type of so-called aseptic anastomosis gives the best results.

If the mesentery of the ascending colon is long and the growth is not extensive, the right colon can be exercised at the same time that the ileo-colonic anastomosis is made.

Cancer of the transverse or left colon and down into the upper portion of the rectum should always be removed in three stages. This has been described before, the first stage being a cecostomy on the right side through a muscle-splitting incision, bringing up the cecum and ascending colon onto the abdominal wall and usually removing the appendix. A glass rod is placed beneath the ascending colon just above the ileo-cecal valve, the bowel is packed off with dry gauze, and a catheter is inserted. The cecum is opened after one or two days. Then a week later an intraperitoneal vaccine, preferably of the newer Steinberg type, is introduced intraperitoneally, and a week later still the resection is done. This vaccine should also be given before excision of the right colon. Steinberg now makes a vaccine or Coli-Bactragen, that may be used at the time of the operation.

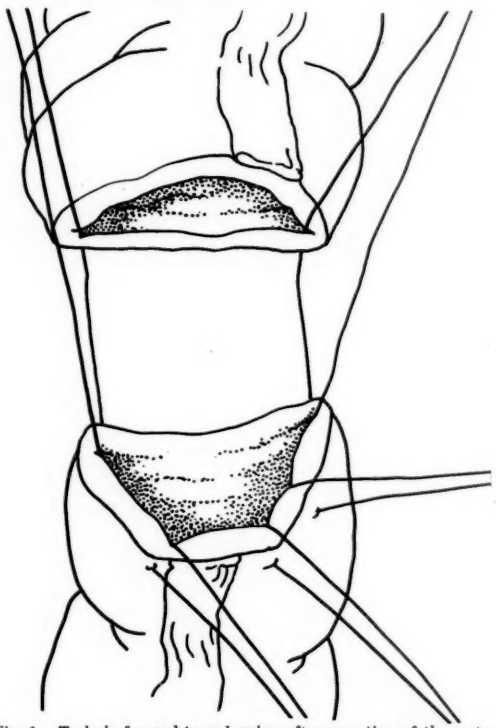


Fig. 1.—Technic for end-to-end union after resection of the recto-sigmoid segment of large bowel. The diseased segment has been removed, and two long guy sutures of silk or linen have been inserted in the posterior border of each stump. Three tractor sutures of linen are placed in the anterior wall of the lower stump.

No effort is made to explore the abdomen at first. Three days after the enterostomy is done the colon is irrigated with an abundant amount of warm salt solution twice a day, both from the enterostomy wound and from the rectum. This makes a mini-

mum time between the enterostomy and the resection about ten days or two weeks. Often the patient has a diarrhea for a while, and it may be wise to stretch this period between colostomy and resection over a longer period.

The resection should preferably be done with an end-to-end union, somewhat as in the small bowel, because the bacterial flora have been reduced by the colostomy and the irregular surfaces of the colon can be united from within far more accurately than by the blinder so-called aseptic method. Over the inner row of continuous silk or linen sutures, an external row of interrupted mattress sutures of fine chromic catgut is placed and the ends are passed

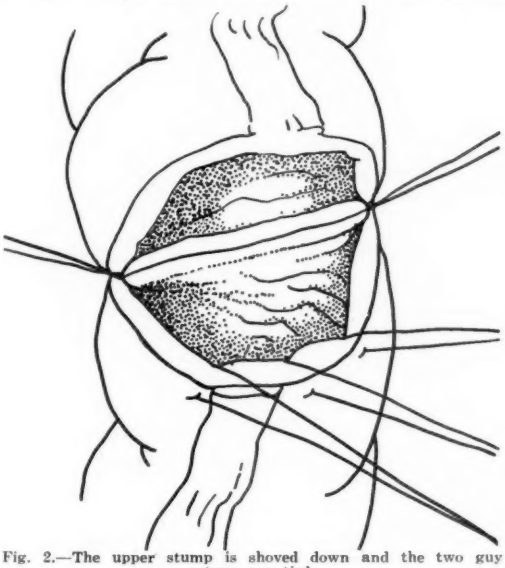


Fig. 2.—The upper stump is shoved down and the two guy sutures are tied.

through adjacent peritoneal covered fat. If the tumor is large or if the patient is very fat, a modified Mikulicz operation is advisable, separating the bowel as though an end-to-end union were to be made, clamping, dividing and tying the mesentery in sections and bringing the whole affected loop up onto the abdominal wall. The two limbs of the affected loop are sutured together, and frequently drainage may be placed down to the stumps of the mesentery. Each end of the loop is doubly clamped and divided with the electric cautery. The drainage is removed in two or three days, but as there is already a colostomy there is no occasion for removing the clamps from the ends of the bowel until they drop off. Then the spur is crushed as usual.

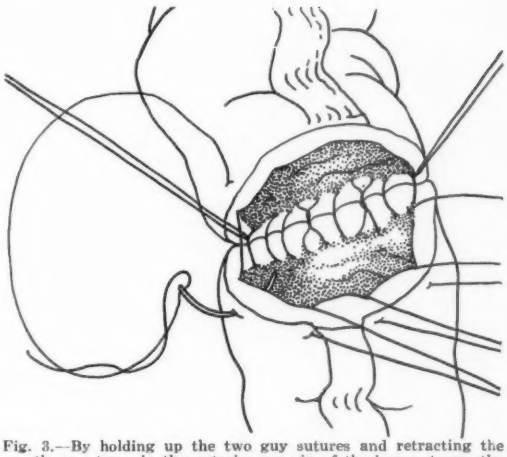


Fig. 3.—By holding up the two guy sutures and retracting the three sutures in the anterior margin of the lower stump, the posterior margins of both upper and lower stumps are rendered prominent and are sutured together with a continuous suture of silk or linen.

In the lower sigmoid or upper rectum an end-to-end union can often be made, whereas formerly a permanent artificial anus was established. In this union, after resecting the lower sigmoid and upper

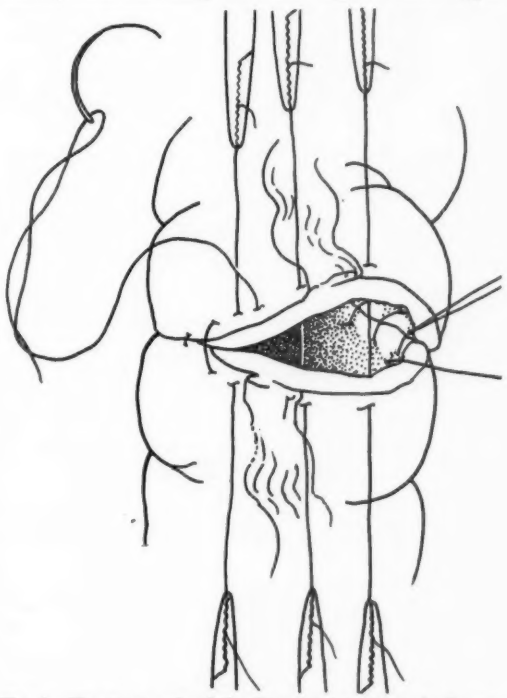


Fig. 4.—The upper ends of the three tractor sutures in the anterior wall of the lower stump are threaded in a needle and passed through the anterior margin of the upper stump. They are then held taut while the continuous suture is carried anteriorly, uniting the anterior margins of both stumps. After this continuous suture has passed a tractor suture, that tractor suture is tied and cut short.

XUM

rectum, two guy sutures are placed through the posterior border of each stump and are tied down as the stumps are approximated. Then the posterior portions of each stump are sutured together, the suture is carried anteriorly, and this row is covered with mattress sutures. (Figs. 1, 2, 3, 4, and 5.)

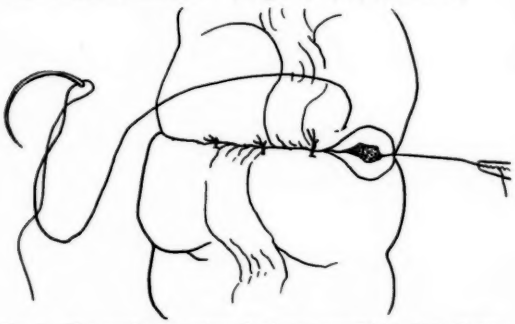


Fig. 5.—The continuous suture is almost completed. It is drawn snugly as it emerges from the mucosa of the lower stump, and in this way tends to invert the bowel to some extent. It is tied to the original end. A row of interrupted mattress sutures of fine chromic catgut is placed around the whole circumference of the bowel, so burying the inner row of sutures. The ends of these mattress sutures are left long, threaded in a needle, and passed through some peritoneal covered fat, either omentum if it reaches that low, or adjacent flaps of peritoneal covered fat.

Lower down in the rectum a complete excision must be done, establishing a permanent artificial anus. Here spinal anesthesia affords more relaxation and is preferable. By giving continuous intravenous dextrose in Ringer's solution, and by having a donor ready, the excision of the rectum can be completed in one stage, first severing the lower sigmoid and bringing the upper stump out through a stab wound on the left side, closing the lower stump and shoving it down, suturing the peritoneum over it, and closing the abdominal wound. Then with the patient in the lateral or dorsal position, the lower rectum is excised from below.

Fig. 6.—Specimen from Mr. F. B. H. Much of the transverse colon and descending colon have been removed in the second stage of operation for cancer of the splenic flexure. The growth was quite firmly adherent to the surrounding tissues, and at first seemed inoperable. The adhesions, however, appeared to be inflammatory and the growth was mobilized by extensive dissection with the cautery. Some of the charred raw area is shown to the right of the main growth.

Fig. 7.—Drawing of the interior of the cancer of the splenic flexure shown in the preceding illustration (Mr. F. B. H.). The neoplasm had elevated margins and a necrotic base, and there was much inflammatory infiltration.

Often in these operations the use of the cautery is helpful. If the bowel is fairly well fixed to the side of the abdomen, as in the middle sigmoid, a division of the adhesions with the hot electric cautery may convert what seems to be an inoperable condition into one in which the bowel can be resected. This is particularly true around the splenic flexure. I had a patient in whom there was extensive carcinoma of the splenic flexure which was adherent and appeared at first to be inoperable.

The patient, Mr. F. B. H., was a man 46 years of age whose chief complaint was nausea and vomit-

ing which occurred at intervals, with pain in the lower abdomen. The attacks increased in frequency, and often occurred after meals. There was no diarrhea, and there had been no blood or mucus in the stools except that he passed blood from internal hemorrhoids which had been injected elsewhere.

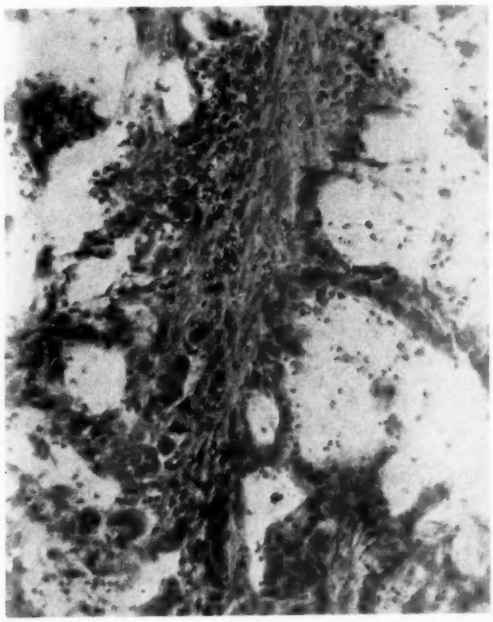


Fig. 8.—Mr. F. B. H. Photomicrograph of cancer of the splenic flexure of the colon shown in the two preceding illustrations. (X 200.) This shows adenocarcinoma with marked colloid degeneration and considerable leukocytic infiltration. It is not a highly malignant type of cancer, and the extensive adhesions were obviously due to inflammatory reaction. The patient made a satisfactory recovery, and is well and seems to be in excellent health a year after the operation.

He had suffered from constipation for many years. He had several vomiting spells before admission to the hospital, and had lost 25 or 30 pounds within six weeks. He was tall and well-built and on admission to the hospital weighed 160 pounds. He entered the hospital September 30, 1934. A right colostomy and appendectomy were done on October 2nd. On October 15th a resection of the left portion of the transverse colon, splenic flexure and the descending colon and a portion of the sigmoid was done, followed by an end-to-end anastomosis. The splenic flexure was densely adherent to the surrounding tissues, and at first seemed inoperable, but it was dissected free with the electric cautery. (Figs. 6, 7, and 8.) After a somewhat stormy convalescence from the resection, the right colostomy was closed on November 28, 1934. The patient was discharged from the hospital on December 16, 1934. The patient has gained in weight and is now (October, 1935) in excellent condition and without symptom or sign of any recurrence of the cancer.

CONCLUSIONS

The great desideratum in cancer of the large bowel is to make an early diagnosis and do an early resection; but when the cancer is advanced, a condition that appears to be inoperable may, by measures which have been described, be converted into one that is operable, giving relief and occasionally cure. It is better to apply radical measures to an early cancer of the bowel, with the greater assurance of cure, than to attempt a too limited removal which may give a somewhat less immediate operative mortality but a larger percentage of recurrences.

DISCUSSION

DR. I. A. BIGGER, Richmond: I enjoyed Dr. Horsley's paper very much indeed. It is an extremely interesting and important subject.

I shall try to emphasize some of the points brought out by Dr. Horsley, especially in regard to the diagnosis of this condition. The diagnosis of carcinoma of the large bowel is difficult and, as Dr. Horsley pointed out, the difficulty is greater when the lesion is on the right side than on the left because the symptoms are less definite. In carcinoma of the left side of the bowel we are apt to get some increase in pain relatively early in the disease, whereas pain usually does not occur until relatively late in right-sided lesions.

It should be remembered that there are no absolutely characteristic early symptoms of this disease, so we have to examine repeatedly those patients with a suspicious history, until a definite diagnosis can be made or malignancy ruled out.

At least 50 per cent of carcinomas of the large bowel occur in the rectum and may be diagnosed by a careful rectal examination. This extremely important examination is too frequently overlooked. We not infrequently see patients with advanced cancer of the rectum who have never had a rectal examination. Some of them have had gastro-intestinal X-ray examinations, etc., when the diagnosis could have been made by the more simple procedure. If digital examination is negative, a proctoscope should be passed and a biopsy done if a tumor is found. This is a more serious procedure and should be carried out only by those who are adequately trained in such work. If a diagnosis cannot be made by physical examination, a gastro-intestinal X-ray examination should, of course, be made.

I have very little to say concerning the treatment of these cases, but would like to stress the importance of

doing complete operations in patients with early carcinoma of the large bowel as well as in carcinoma elsewhere in the body.

DR. H. D. HOWE, Hampton: It seems to me that the most important fact that has been mentioned here is the early diagnosis of cancer, whatever its location. Take this patient that I had referred to Dr. Horsley. I have known him well for ten years and thought he always felt well. It was only when he called me for what I found to be a complete intestinal obstruction, that, on questioning, he recalled having had a large painless hemorrhage from the bowel several months before.

The dread of practitioners in telling a patient of the possibility of a certain lesion being cancerous frequently destroys all hope of early treatment.

I believe that more stress should be laid on the value of routine rectal examinations. I often have patients sent to me for hemorrhoid operation that a more careful rectal examination should have shown to be at least suspiciously malignant.

We can't send all our cases to Dr. Horsley and it is comforting to remember that some very good results are obtained by lesser surgeons, in resections of the colon. A great many cases do live in comparative comfort after making a permanent colostomy and the distal growth treated with radium. Just now I have one patient eight years and another six years after the establishing of an artificial anus, who carry on very satisfactorily.

I like the way Dr. Horsley does his end-to-end anastomoses. I would never have thought of doing it on this patient mentioned here. It was a remarkable piece of work putting in his sutures in the depth of the pelvis and getting such perfect coaptation. To this man, he gave a year of comfort and happiness—which year he owes entirely to a really remarkable operation.

DR. R. L. PAYNE, Norfolk: It is interesting to listen to the splendid paper of Dr. Horsley, and to learn of his success in cases of resection with re-establishment of the continuity of the large bowel. With regard to this question of re-establishment of continuity, I have been able to successfully do this on a few cases, and I think Dr. Horsley is to be congratulated, for I do not think that every surgeon can be successful with this idealistic plan of dealing with the large bowel.

I feel that we should not be disillusioned by the feasibility of re-establishment of continuity, and undertake this as a routine in sigmoid carcinoma. I think that we should more often be satisfied with the less technically-difficult procedure of making a permanent colostomy, for in many instances anastomosis is not successful because of poor circulation, and often, too, the technical skill of the average operator is not equal to the task of the reconstructive operation. I think that all of us dealing with these cases should keep in mind the simplicity and satisfactory results obtained by permanent colostomy.

I have a goodly number of permanent colostomies that are entirely well of their disease, and leading a perfectly normal life. On a low residue diet, and with the aid of an enema at bed-time every second or third day, some of these individuals are able to get along without the colostomy cup, and practically all of them are indulging in the normal activities of life, the women going to card parties, and the men to their business offices. All told, they learn to lead normal lives and readily adjust themselves to the problem of permanent colostomy.

I don't think the average practitioner realizes the prolonged time element necessary in handling these cases surgically. The success of all surgery on the colon depends upon prolonged pre-operative preparation, multiple stages of operation, and prolonged post-operative rest after each operative step. Given a growth on the right side of the colon, a week or ten days at least is needed to completely cleanse the large bowel before anything otherwise is done; then a side-tracking ileo-colostomy is performed, and the patient allowed to go home, rest and become rehabilitated over a period of at least four weeks, before the major resection of the growth is undertaken. Following this major operation, the patient still has a long period of hospitalization.

Secondly, I would like to emphasize the fact that many large right-sided growths are considered inoperable, when, as a matter of fact, if handled by experienced surgeons, and the growth put at rest by a colostomy or some other side-tracking anastomosis, one will find that the dense fixation and the associated inflammation will materially subside and thus permit the condition to lend itself to major surgery with very satisfactory results.

I know that back in the early years of colon surgery, I considered inoperable many cases which now, after a period of rest for a month, would become thoroughly movable, and major resection prove to be comparatively a simple and successful procedure.

DR. HORSLEY, closing the discussion: I congratulate Dr. Payne and Dr. Howe on the early diagnosis of their cases. Careless examinations are real tragedies in this case.

As Dr. Payne has emphasized, many cases of cancer of the large bowel that seem inoperable will by physiologic rest, that follows a complete colostomy, prove to be amenable to resection.

NECROSIS OF THE URINARY BLADDER WITH EXFOLIATION—REPORT OF TWO CASES.

HERBERT D. WOLFF, JR., M. D.,
Alexandria, Va.

Historical: This condition was first described by Willis[14] in 1650 and a summation of the literature emphasizes a not infrequent occurrence, yet uro-iogical texts rarely mention the subject. It may involve any or all layers of the bladder wall with or without exfoliation of the mucosal layer; hence it is not surprising that it has been reported under a varied terminology. Haultain,[4] reviewing fifty-eight cases in 1890, suggested the term "necrosis of the urinary bladder with or without exfoliation," and this seems most adequate. O'Neil[10] in 1910, Wolferth and Miller[15] in 1924, Geisicke[3] in 1931, Stirling and Hopkins[12] in 1934, and others have reviewed the literature and added personal cases, a total of 207 being on record. In 1934 and the first six months of 1935, three cases are listed, one by Molina,[9] one by Maggipinto[7] and one by Wild.[13] The data presented by Molina[9] in his report seems to me inadequate to warrant the diagnosis of "necrosis of the bladder" and the case is omitted from this review. One personal case and another which I have been allowed to publish are herein recorded, making a total of 211 cases.

Etiology: No recent advance has been made in our conception of the underlying process. The vesical circulation, arterial and venous, concentrates at the bladder neck, the only area of vesical fixation. Pressure there can produce either circulatory stasis or urinary retention or both. Urinary infection is associated or soon follows. May,[8] experimenting on dogs in 1869, showed that vesical over-distention obstructed the venous return. In proportion to the duration of obstruction the picture varied from mucosal edema with ecchymotic hemorrhage, through frank submucosal hemorrhage with separation of the mucosa to necrosis of the entire bladder wall. Huebner[6] ligated the vesical blood supply in rabbits and obtained from serial autopsy studies the picture of bladder necrosis in varying stages, dependent on the time period.

Essentially the primary factors seem to be:

1. Circulatory stasis, produced in the majority by (a) external pressure, as from malposition of the pregnant uterus, prolonged labor or pelvic tumors and (b) over-distention of the bladder from any cause. Less frequent etiological agents are listed in the group analyses of previous reviews.

2. Infections of (a) local character, as in severe cystitis or following prostatic operation, and of (b) general character, as when the bladder necrosis is a complication of typhoid or other systemic infections as reported in fifteen cases. Whether or not there is any specific causative organism remains to be demonstrated. The majority reported had mixed infections.

3. Extrinsic factors, instanced by numerous reports of necrosis following the intra-vesical injection of chemicals and also from radio-therapy, as mentioned by Geisicke.[3]

A trophic element may be claimed for neurogenic cases, but, again, circulatory stasis and infection seem the active agents. Generally there will be combinations of the basic causes.

Incidence: It occurs most commonly among women as a complication of pregnancy or delivery, but has been reported at the age of three years, and is concurrent with lower urinary tract obstruction in the aged. Of late we hear of it following trans-urethral prostatic resection.

Pathology: This varies with the degree of circulatory involvement and the severity of attendant infection. The mucosa, presumably from the effect of submucosal hemorrhage plus ischemia and infection, becomes separated but often carries with it areas of submucosa and muscularis. It may be thrown off or removed as a cast or as particles of slough. There occurs essentially a coagulation necrosis and in some the entire wall becomes gangrenous. False inflammatory membranes containing no bladder tissue are passed at times; hence the term "pseudo-membranous cystitis." Microscopic study then is necessary for correct diagnosis but were this standard upheld for the cases reviewed, few would measure up. Urosepsis is common in neglected patients while perivesical spread of infection and rupture of the bladder are not unusual. Re-

XUM

covery is followed by fibrosis which leaves a contracted bladder although a few regain their normal capacity. Ureteral regurgitation has been noted frequently.

Diagnosis: The clinical picture varies from that of urosepsis to that of a simple severe cystitis, as in the personal case reported. A very purulent urine containing tissue particles with intermittent blockage of urination or of an urethral catheter is diagnostically suggestive. Incontinence and retention are common features. Cystoscopic vision is generally impaired and the procedure is dangerous during the acute phase. It may be worthwhile if necessary for diagnosis or if it can serve as a means for removal of the sloughing mucosa.

Treatment: Adequate drainage is the essence of treatment. In the female, urethral drainage is often satisfactory, particularly after passage of the mucosal cast. In the male suprapubic cystostomy with removal of gangrenous tissue is definitely the method of choice. Maintenance of urinary acidity, urinary antisepticism, transfusions, adequate fluid intake and careful observation for and treatment of possible complications cover the therapeutic regimen.

Prognosis: The mortality varies greatly and not directly with the apparent extent of necrosis. It is lower in women as drainage is more easily established. The death rate increases rapidly when the etiological factors are derived from generalized infection, diseases of the central nervous system and operative procedures involving the bladder or its blood supply. In the male there is a high mortality rate but this drops amazingly in the cases cared for by early cystostomy with removal of the mucosal slough. Of the 209 cases on record and the two here reported, 120 died and eighty-four recovered while the outcome was not reported in the others.

CASE REPORTS

Case 1 (Personal report): Mrs. R. D., white primipara, age 14. Past history unimportant. Pregnancy occurred and went to term unsupervised. A physician was called at 8:30 A. M., April 30, 1935, after she had been in labor some hours.

Physicians Report: "Mid-pelvic application of forceps with repeated efforts over one and one-half hours was necessary for delivery. The infant lived twelve hours. Catheterization was necessary the following day but was not repeated. Except for pelvic discomfort and some incontinence of urination her condition seemed good on five daily post-delivery visits after which she was not seen."

The patient stated that her bladder symptoms became worse and on May 15, 1935, she was brought to the Alexandria Hospital. She complained of marked low abdominal discomfort and incontinence but did not appear very ill. Her temperature was 99.8 degrees.

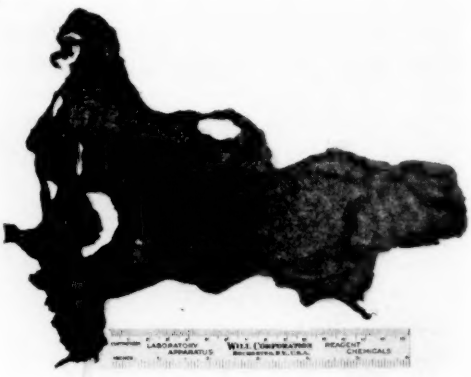


Fig. 1.—Exfoliated cast of the bladder from Case 1.

Physical Examination on Admission: The significant findings were: (1) abdominal distention with a rounded mass filling the pelvis, thought to be the bladder, and (2) healing lacerations of the vagina and cervix and subinvolution of the uterus with partial fixation.

Catheterization gave symptomatic relief, 350 c.c. of foul, very purulent urine being obtained.

Laboratory Reports Upon Admission: Hemoglobin 55 per cent (Dare), red cell count 2,800,000, leukocytes 11,150, differential normal. The catheterized urine was acid, free of sugar, showed a 3 plus albumen and microscopically 4 plus pus and 1 plus red blood cells. A gram stain of the urinary sediment revealed gram negative bacilli and cocci.

Her course was nearly afebrile, her temperature occasionally rising to 99.8 degrees. Incontinence continued, temporary relief following routine eight-hour bladder irrigation which was often difficult because of blockage by tissue particles. On May 24, 1935, a piece of grayish slough was extruded from the urethral os and a staff physician delivered the specimen, shown in Figure 1, by gentle traction. Urological consultation was requested at this time

and the specimen seemed to be a cast of the bladder mucosa, measuring approximately 21 by 10 cm., and being 1 to 3 mm. in thickness. It was gray-

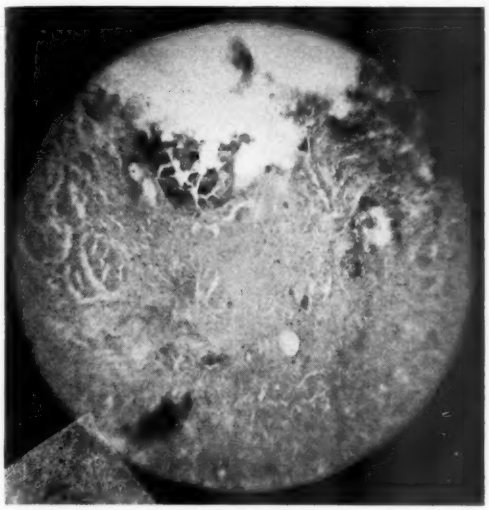


Fig. 2.—Microphotograph of mucosal layer of cast from Case 1.

ish in color and leathery in consistency with areas varying in degree of degeneration. Certain portions seemed to contain muscularis as well as mucosa and variously showed salt deposits.

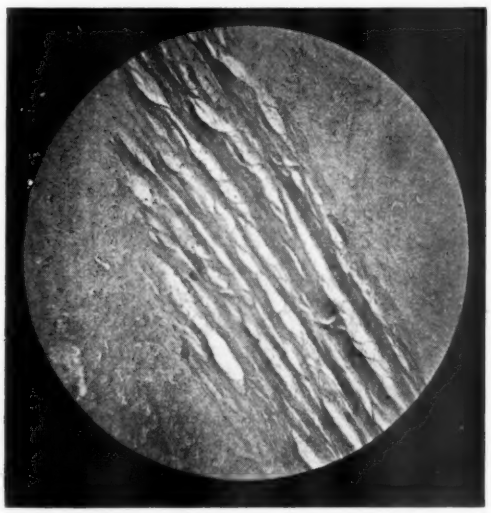


Fig. 3.—Microphotograph of remnant of muscularis in cast from Case 1.

Pathological Report by Dr. C. F. Fifer: Microscopic—Section shows necrotic tissue with many areas of calcium deposit. There are areas in which the nuclei are quite distinct though degenerating. They look like epithelial nuclei. There are many areas of darkly staining tissue which resembles smooth muscle and other areas which look like connective tissue (Figures 2 and 3).

Diagnosis: Bladder epithelium with areas of underlying muscle and connective tissue, all in a degenerating state.

Her condition was good, there being no evidence of peri-vesical involvement. She was still incontinent and was found to have a residual of 150 c.c., almost pure pus in character. A mushroom catheter was placed into the bladder per urethra and a continuous irrigation of the type described by Hinman,[5] using boric acid with a low hydrostatic pressure, was begun.

This relieved her discomfort immediately. Her urine was kept strongly acid and urotropine continued by mouth. Her convalescence was essentially uncomplicated, being abetted by blood transfusions and symptomatic therapy.

The bladder capacity was about 50 c.c. during this period. On June 14, 1935, the catheter was removed and after twenty-four hours she had fair control and voided 50 to 80 c.c. at a time, her residual being only 30 c.c. There was mild dysuria and a frequency of every 20 to 60 minutes. Her urine showed numerous pus cells and gram negative bacilli.

Cystoscopic, June 18, 1935: Urine cloudy one with numerous pus cells. Bladder capacity 100 c.c. The bladder contour was smooth and symmetrical, there being a covering simulating very pale mucosa over the entire surface with mild congestion of the base and bladder dome. No areas of ulceration or salt incrustation were seen. The ureteral orifices appeared slightly patulous, but the urinary spurts from each were clear. A fifteen-minute intravenous phthalein test gave a total of 7½ per cent from the bladder. Ureteral catheterization was postponed as the patient had been free of upper urinary tract symptoms. She was discharged June 19, 1935, treatment to be continued at the office.

On June 21, 1935, she was readmitted to the hospital with marked frequency and dysuria, having meanwhile indulged in unwise exercise. Physical examination did not reveal any change of note. Bladder irrigations produced improvement until

XUM

June 27, 1935, at which time she went thirty to sixty minutes between voidings but dysuria remained severe.

Fig. 4.—Exfoliated cast of the bladder from Case 2.

Cystoscopic, June 28, 1935: Urine cloudy one with numerous pus cells. Bladder capacity 75 c.c. There was a mild diffuse cystitis and an irregular area of superficial ulceration 2½ cm. in diameter, located in the bladder dome. Several lines of submucosal scarring seemed to be converging at the site of the ulcer while just lateral to it a small cellule had formed. Indigo-carmine given intravenously appeared from both ureteral orifices in fifteen minutes, achieving approximately 1/3 normal concentration.

Direct application of silver nitrate to the ulcer induced healing and by July 11, 1935, she was voiding every one and one-half hours with only slight discomfort.

Cystoscopic, June 11, 1935: Urine clear with 30-50 pus cells per H.P.F. Bladder capacity 100 c.c. The ulcer area was less than 1 cm. in diameter and quite clean. A flat X-ray of the urinary tract and a cystogram were normal. Ureteral regurgitation did not occur. Intravenous urography revealed a delayed appearance time and poor concentration of dye, confirming previous functional tests indicating renal damages. The outline of calices and ureter was normal on the left. On the right there was mild dilatation of the ureter and pelvis with slight blunting of the calices. She was discharged July 17, 1935, under strict care of relatives.

Office treatment was continued.

Cystoscopic, August 8, 1935: Catheterized urine negative microscopically. Bladder capacity 160 c.c. The mucosa and ureteral orifices were normal and the ulcer healed. Submucosal fibrotic bands crossed in the bladder dome and the one cellule remained unchanged. Early trabeculation in the dome was noted carefully for later comparison.

Symptomatically she was free of dysuria, had a frequency of three to four by night and five to seven by day and claimed good control. Her general condition was excellent.

Cystoscopic, October 1, 1935: Catheterized urine negative microscopically. Bladder capacity 200 c.c. The mucosa and ureteral orifices were normal, no change of note having occurred since last seen. Intravenous indigo-carmine appeared from both ureteral orifices in four minutes in good intensity, showing a return to normal renal function.

She had gained weight, seemed in excellent condition and except for a nocturia of two was symptom free and had good control of micturition.

Case 2. (I am indebted to Drs. Gordon and Dodson of the staff of the Medical College of Virginia for this report):

A white male, age 24, was admitted to the Medical College of Virginia Hospital, in Richmond, on May 31, 1935. Diagnosis: "Fractured skull with cerebral concussion." Urinary retention became acute four days after admission and 1700 c.c. of urine were removed at catheterization. On the ensuing three days 700 to 800 c.c. of bloody urine were so removed every eight hours and the bladder irrigated with saline solution. Urological consultation, June 7, 1935, resulted in the placing of an indwelling urethral catheter. Drainage was poor, seemingly due to the very purulent character of the urine, while irrigations were both difficult and painful. His temperature did not exceed 100.5 degrees until it suddenly rose to 103 degrees on June 20, 1935. A suprapubic cystostomy June 21, 1935, revealed free within the bladder a large piece of necrotic

tissue which was removed without difficulty (Figure 4).

Pathological Report: Gross: A saccular membrane relatively smooth and gray on one side while shaggy and grayish brown on the opposite side. The dimensions were 15 by 15 by 0.1 cm.

Microscopic: The membrane was composed entirely of necrotic tissue and debris. No viable cells and none morphologically identified.

Diagnosis: Necrotizing cystitis.

His immediate convalescence was smooth, his temperature becoming normal on the third post-operative day. Later progress was marred by a recurrent suprapubic urinary fistula which required readmission to the hospital on two occasions. Cystoscopic study resulted in a diagnosis of contracture of the bladder neck. After transurethral resection and fulguration of the bladder neck scar the suprapubic fistula healed and the patient was discharged with a good functional result.

COMMENT

Adequate drainage cannot be too strongly emphasized. In the personal case reported a continuous bladder irrigation gave marked symptomatic relief and in my opinion hastened healing and avoided complications. Circulatory impairment probably accounted for the bladder ulcer. It was interesting to observe submucosal scar formation and the development of one cellule and of early trabeculation.

REFERENCES

1. Carson, W. J.: Gangrene of the Bladder—Report of Additional Cases. *Ann. of Surg.*, 1927, LXXXV, 269.
2. Cowen, L. B., and Cowen, Robt.: A Fatality Following Electromic Prostatic Resection—Report of a Case with Autopsy Findings. *Urol. and Cutan. Rev.*, February, 1933, 105.
3. Geisiche, H. von: Cystitis Dissecans Gangraenescens. *Zeitsch. fur Urologie, Leipzig*, 1931, XXV, 561.
4. Haultain, F. W.: Lab. Reports. Royal Col. Phys., Edinburgh, 1890, ii, 216.
5. Hinman, F.: A Simple Apparatus for Continuous and Automatic Bladder Irrigation. *Jour. Urol.*, 1919, iii, 281.
6. Huebner, J. O. L.: Die Experimentelle Dipth., Leipzig, 1883.
7. Maggipinto, D.: Dry Gangrenous Cystitis and Urinary Infiltration of the Abdominal Wall in the Fourth Month of Pregnancy Caused by Retroflexion of the Uterus—Continuation of Pregnancy. *Clin. Obstetr.*, 1933, XXXV, 522.
8. May, Ernest: Retroversion of the Pregnant Uterus—Inaugural Dissertation, Giessen, 1869.
9. Molina, L. F. R.: Gangrene Cystitis with Involved Ureters, Following Abortion—Case. *Urol. and Cutan. Rev.*, February, 1934, 88.
10. O'Neil, R. F.: Necrosis of the Bladder with Exfoliation. *Surg., Gynec. and Obst.*, May, 1910, 503.
11. Patch, F. S.: Gangrenous Cystitis. *Jour. Urol.*, 1928, XIX, 713.
12. Stirling, W. C., and Hopkins, G. A.: Gangrene of the Bladder—Review of 207 Cases with Report of 2 Personal Cases. *Jour. Urol.*, 1934, XXXI, 517.
13. Wild, T.: Dry Gangrenous Cystitis as Indication for Interruption of Pregnancy. *Wien. med. Wchnschr.*, 1934, LXXXIV, 1116.
14. Willis, T.: Diss. de Urinis, 1650.
15. Wolferth, C. C., and Miller, T. G.: Necrosis and Gangrene of the Urinary Bladder. *Am. Jour. Med. Sc.*, 1924, CLXVII, 339.

Doniphan Building.

ARTHRITIS: ITS RELATIONSHIP TO VARIOUS FOCI OF INFECTION.*

H. H. WESCOTT, M. D., F. A. C. S.,
Roanoke, Va.

It is a pleasure to have this opportunity to express to the members of the dental profession, my sincere appreciation for the cooperation given me during the past few years, in the handling and care of our patients. Many of these could not have been benefited without your close understanding of the various problems encountered. Next to the internist, the orthopedist is probably most dependent on the dental surgeon for his opinions. This is especially so in our dealings with that age-old disease, arthritis.

There is so much to be said on the subject of arthritis, as to its cause and treatment, that only a small phase of this most interesting subject can

*Read at a joint meeting of the Roanoke Academy of Medicine and the Roanoke Dental Society, Roanoke, Va., December 2, 1935.

be discussed in such a short period of time. My remarks will necessarily have to be limited to the most prevalent and most often encountered form, i. e., arthritis, secondary to a focus of infection.

The relationship of infection to arthritis was known as far back as 680 B. C. On a tablet has been found the inscription of a physician, "The pain in his head, his sides, and his feet has come from his teeth; they must be extracted." Holmes cites Hippocrates as describing, two cases of the eradication of rheumatism by elimination of mouth infection. Benjamin Rush in 1801 again directed attention to oral sepsis as a specific cause of joint disease. It was not until 1912, well after the known relationship of bacteria and disease and the advent of the X-ray, that Dr. Billings called our attention to oral sepsis and its effect on the system.

Several years ago, we were much impressed with the teachings of various internists and orthopedists, who at that time claimed wonderful results with the use of various methods of their own. These treatments consisted of colonic irrigations, baking and massage, hydrotherapy, chemotherapy, improvement of posture, the use of glandular extracts, vaccines, and the most abused of all, special diets. After following their various methods and combinations of treatment, I am of the opinion that their reported good results have been due to psychotherapy rather than to any specific therapeutic measures employed.

I have definitely come to the conclusion that the swing of the pendulum back to the conservative form of treatment has been because of, first, the inadequate removal of the existing focus of infection, and, second, to the irreparable condition of the tissues at the time of the removal of the focus.

In the care of arthritics, the following observations have been made so frequently that they are accepted by me as proved facts, and are not set forth with the idea of forcing them on either the dental or medical profession.

In every instance, a few weeks to a period of five years or more before joint symptoms are manifested, there is a prodromal stage of feeling of lassitude, with a tired feeling even on arising. This is often so insidious on its onset and development that occasionally the individual insists it is not present until after both joint pain and general sepsis have been improved or relieved. Joint symptoms are regarded as an indication of the amount of over-saturation of the general system. The progress of the disease in the joint is in direct ratio to the amount of infection present and the resistance of the body to the infection. Certain individuals may carry, without discomfort, what would be to another with a lowered resistance. Maybe there is some allergic factor which determines the amount of resistance of each individual. Until this is definitely proved, I shall continue to feel that resistance depends more on one's mode of living than on some obscure chemical factor.

The reaction of individuals to varying amounts of infection should directly govern our thoroughness in the elimination of a focus of infection. Were it possible to test each child or adult for resistance to infection, we would know in whom to leave tonsils, and in whom to treat oral pathology.

I have purposely confined the question of focus of infection to the throat and the oral cavity, because, in my experience, I have yet to see a case of arthritis resulting from an infection of the sinus, gall-bladder, colon or prostate gland. Though some cases will show improvement following massage of the gland, irrigation of sinuses, drainage of the gall-bladder and such, there has been no lasting improvement except by the removal of the primary focus in the throat or oral cavity, or both. Following the removal of this primary focus of infection there is usually an improvement in the secondary focus, whether it be sinus, gall-bladder, kidneys or prostate gland, and often without any specific treatment directed to the secondary focus. As previously stated, these statements refer only to low-grade infections and not to an arthritis resulting from an acute infectious disease as syphilis, gonorrhea, etc.

It is to be lamented that the treatment of a potential arthritic is seldom directed toward the removal of the cause until after joint changes have become apparent. Practically all of these patients give history of having had various tonics, diets, rest, and often a change of climate prescribed to them. More often than not the individual is much benefited by such therapy, only to have a recurrence on resuming his former routine. From a few months to many years later, joint changes manifest themselves and there follows too often a course in salicylates or else a more restricted routine, with probably some foreign protein added to the general care. I firmly believe that "once an arthritic, always an

arthritic," and were it possible to determine the susceptibility of the individual to infection, and remove it during the early symptoms, arthritis, as such, would be a seldom encountered disease instead of one of the most prevalent.

I do not wish to give the impression that we should promiscuously remove from each individual every potential focus of infection. But I do insist on the radical removal of any suspicious area of infection in the septic individual with arthritic tendencies. When an individual refuses to have definite foci removed, they are informed that both disease and cause are theirs to do with as they choose, and are requested to seek advice elsewhere. In numerous instances, these patients have returned weeks later to tell of their improvement and cure following the use of vaccines, diet, bacillus acidophilous and such—only later to have a recurrence of joint symptoms more severe than the primary attack. In patients with extensive arthritic changes, the removal of the focus of infection can result only in the retardation of the progress of the disease or, in some instances, some slight improvement.

It is my firm opinion that arthritis, though it may be improved, cannot be cured, but it may be prevented by the close cooperation of the physician and the dentist. The early recognition of the pre-arthritic symptoms and the early removal of the focus of infection are obligatory to the prevention of one of our most disabling diseases.

CASE REPORTS

Case 1. September 16, 1932, white, female, age 76. Arthritis in both knees requiring the use of two canes for past three years. Edentulous; gums negative by X-ray. Tonsils infected. Tonsillectomy was followed by relief of pain within fourteen days. Patient has remained free from discomfort.

Case 2. December 11, 1933, white, male, age 34. Acute subdeltoid bursitis of right shoulder of two weeks' duration. Open operation of shoulder had been advised. There was complete relief within four days following the extraction of an abscessed tooth.

Case 3. June 29, 1934, white, female, age 28. Generally tired, with pain in both knees for past six years. Several devitalized teeth removed four years ago. Recent X-rays showed three devitalized abscessed teeth. These were removed, and twelve months later there was relief of symptoms with the exception of some slight tenderness over the inner condyle of the right knee. The removal of all devitalized teeth four years ago would probably have resulted in a complete cure. At this stage it is questionable.

Case 4. February 18, 1935, white, female, age 68. Arthritis in feet, knees and hips for past five years. Tired feeling requiring rest eighteen hours in every twenty-four. Walking with cane. Edentulous, having worn plates for the past fifteen years. Roentgenograms of gums showed right upper and lower incisor roots present. Two weeks after removal of foci, patient walked without pain and without cane. She states the tired feeling was relieved for the first time in seven years.

Note: The relief following removal of the focus of infection was rather spectacular in Cases 1, 2, and 4. These are cited simply to show the direct connection between the focus of infection and the disease. In the majority of instances, after removal of the focus, a period of from six to twenty-four months elapses before there is sufficient improvement in the general condition to allow the maximum improvement in the diseased joints.

Medical Arts Building.

SOME ILLUSTRATIONS OF THE RELATIONSHIP OF DENTAL PRACTICE AND MEDICINE.*

JOHN BELL WILLIAMS, PH. G., D. D. S.,
McGuire Clinic, St. Luke's Hospital,
Richmond, Va.

An address to physicians and dentists usually begins historically by reminding the audience that in the days of the early Egyptians there were "practitioners for the eyes, practitioners for the head, some for the teeth, others for the belly, and for occult maladies"; that Hippocrates invented dental

*Read at a joint meeting of the Roanoke Academy of Medicine and the Roanoke Dental Society, Roanoke, Va., December 2, 1935.

instruments and established principles for treating fractures of the jaws that are forgotten with each generation and re-discovered with all wars. Such talks usually recall the interest in the mouth shown by Celsus, Fallopius, and a host of other great medical pioneers; quote from Shakespeare, Chaucer, Moliere, and the philosophers; and finally wind up in a state of ecstasy over the barber-dentist-surgeon Ambrose Paré, and the contributions of general anesthesia by the dentists, Wells and Morton.

To simplify matters let us pay early and profound respect to these giants of our mutual history and then settle down to a commonplace discussion of our own daily trials and tribulations.

Such a discussion will be given from two main standpoints, one, the relation of focalized infection in the mouth to systemic disease, and, two, the mouth picture of certain constitutional disorders. These two subjects are not mutually antagonistic but at times overlap, as will be seen.

Ten years ago, of one hundred and fifty consecutive patients who entered St. Luke's Hospital, Richmond, Va., for purely surgical conditions, ranging from brain tumors to enlarged prostate glands, 40 per cent had recently had one or more teeth extracted before the necessity for a major operation became apparent. The sweeping removal of teeth had its day until finally the jester combined "teeth and tonsils" for his play. History proves, however, that honest men who propose radical changes become conservative in proportion to their ability to comprehend and apply the detailed knowledge of the facts involved. The development of the theory of focalized infection has followed this general rule. Equilibrium is becoming established through experience. As we observe, compare, reflect and record, we become more rational.

Because of a lack of familiarity with each other's methods of reasoning, controversies still develop between physicians and dentists. At our hospital we seem to have evolved unconsciously a plan that avoids friction. Teeth that are definitely diseased are removed. Teeth that are questionable are reported in detail. Their retention or removal is so often dependent upon other findings that we leave the final decision to the man responsible for the patient's welfare as a whole, or decide it by consultation. If a patient has doubtful teeth and a medical disease probably not associated with focalized infection, our advice is conservative; but if the patient is suffering from a general condition believed to be associated with focalized infection, our advice might be called rationally radical.

I. The Relationship of Focal Infection (Teeth) to Systemic Disease

Under this heading our minds naturally turn first to that best known and most popular of all focal infection questions, namely, its relation to the various joint conditions. As a discussion of this relationship has been so adequately made this evening by Dr. H. H. Wescott in his paper, "The Relation of Foci of Infection in Certain Types of Arthritis," we will not pause to consider it again, but will pass on to other problems.

1. The Urinary Tract

Let us assume that a patient with disease of the "urinary system" is found to have suspicious pulpless teeth. In determining what procedure to follow the logical thing is to ascertain from the attending physician the nature of the urinary trouble. Is it in the kidneys, the ureters, the bladder or the urethra? Is it complicated with diseases in other organs or systems? The answers to these and other questions may be the determining factors in reaching our conclusion. Let us assume that the kidney is the seat of the trouble. Before deciding what to do about the teeth we must know more of the kidney disease. If it is a kidney stone, extracting the teeth certainly will not remove the stone, though it may tend to prevent another. In polycystic kidney, for example, one kidney may require surgical removal regardless of the condition of the teeth; if both kidneys, because of numerous cysts, are so impaired in function that death is sure to follow, the extraction of teeth would only subject the patient to an unnecessary physical ordeal and financial strain. Proceeding further, let us say that this patient has chronic nephritis, usually divided into the interstitial type or arteriosclerotic kidney, probably a degenerative disease, and the parenchymatous type long thought to be inflammatory but now considered by many as an allergic phenomenon. We are advised by our medical consultants that in the first type oral sepsis plays no direct part, though it may result in imposing a parenchymatous condition on the pre-existing state. But in chronic parenchymatous nephritis it is considered of prime importance to remove all foci of infection because

those foci may at any time produce an acute flare-up of the existing chronic kidney condition. With this information at hand, the fate of doubtful teeth in chronic parenchymatous nephritis no longer remains unsettled. We are justified in the removal of every tooth that might act as a focus.

2. "STOMACH TROUBLE"

"Good digestion waits on appetite and health on both" describes an ideal condition. The American people are unhappily the frequent victims of dyspepsia. Often, for relief, they have their teeth "fixed."

Dentists must remember that indigestion may be due to a number of causes ranging fom an infected gall-bladder, appendicitis and constipation, to eye strain and strained domestic relations. This does not mean that the stomach is immune to disease. In fact, it is subject to many disorders. The most important are ulcer and cancer.

Years ago dentists treated and filled patient's teeth to improve mastication and thus prevent or cure ulcers of the stomach; their sons now extract these same teeth for the same purpose. The sons act on the "newer knowledge" that focalized infection, particularly the type associated with pulpless teeth, is a possible cause of these ulcers. Those who advance this theory, however, have not explained why peptic ulcers occur more often in men than women; frequently give their symptoms in the spring or early summer; are very common in some localities; and occur often among people who follow certain vocations.

Dr. Stuart McGuire has stated that the majority of successful dentists over fifty years of age are the victims of dyspepsia. He attributes this fact to the nerve strain and close confinement of their work. These factors are being happily removed by good anesthesia, fair fishing, and so-called golf.

A discussion of dentistry and digestion cannot close without reference to the thousands of toothless people who have good digestion and live to a ripe old age. This fact we keep as a professional secret.

3. DIABETES

Conceding that there may be doubt in some minds as to the part oral sepsis plays in diabetes, it is reasonable to assume that the elimination of all foci of infection gives the patient a better chance to handle his diabetic condition. In fact, some enthusiasts go so far as to claim that as the oral infection subsides sugar is correspondingly reduced both in the blood and in the urine.

Formerly, with diet only to rely on, great difficulty was experienced in deciding when to operate, and a long wait was frequently necessary. Now this problem has been largely solved. With a carefully selected weighed diet and the carefully controlled use of insulin, the dental operator like the surgeon can treat these people almost as if they were not diabetics. The fact that practically all these patients have pyorrhea makes them mutually interesting to both the physician and the dentist. Some medical writers remind us that excess glucose in the blood stream lowers the body resistance and makes an excellent culture medium for any casual organism that might come along. The biochemists feel that the absorption of bone seen in pyorrhea may be due to the continual acidosis to which these patients are liable when uncontrolled. Certain it is that their tissues have a poor "come back." The number of pyorrhea patients who have diabetes is small, but the number of diabetic patients who have pyorrhea is large. They cannot be satisfactorily treated by either the physician or dentist working alone; there must be an intelligent cooperation of the two.

4. THYROIDITIS

Inflammation of the thyroid gland is usually classified as simple, suppurative, and chronic, each of which is again classified into those primary in the thyroid and those secondary to generalized infection.

It is agreed from clinical observation that over fifty per cent of the cases of simple thyroiditis are associated with preceding infection of the tonsils, pharynx, teeth, or upper respiratory tract.

It was our pleasure to handle such a case recently. The patient was referred to the hospital, January 25, 1933, with a diagnosis of goiter, while another surgeon who saw her in consultation at home was suspicious of malignancy. She had been ill for four weeks with her thyroid enlarged and tender. There were slight choking sensations and difficulty in swallowing. Her temperature had been elevated usually in the afternoon to 101° or 102°. There had been a loss of about twenty pounds in body weight. She was considerably worried for fear she had tuberculosis since she had been nursing her

XUM

husband who had this disease for several years. The basal metabolic rate was plus 24. The general physical, X-ray and laboratory examinations were essentially negative. The dental examination revealed advanced pyorrhea and one so-called "blind" abscess.

Diagnoses considered in the medical department were simple thyroiditis, tuberculous thyroiditis, and malignant disease. It was decided to treat the patient along general conservative lines with rather radical dental therapy. Four teeth were removed and the pyorrhea pockets laid open so that the inflammatory tissues contained therein could be definitely removed. The fever began to subside immediately. The thyroid decreased in size and the tenderness abated. The patient left the hospital thirteen days after admission with normal temperature, having gained nine pounds in weight. Her basal metabolic rate at the time of her discharge was plus seven. At the present time, two and one-half years after the original examination, she is perfectly well.

II. The Mouth Picture of Certain General Disorders

It not infrequently occurs that patients who come to their dentists at regular intervals develop some general disease which is not yet sufficiently advanced to have come to the individual's attention. Consequently, the dentist should be familiar with the oral manifestations of systemic diseases. Of such changes we will mention only a few.

1. Anemia

Anemia, particularly the primary pernicious type, presents striking changes in the oral tissues. The mucous membranes become pale and almost bloodless. Spongy bleeding gums are practically never seen. The tongue appears small, smooth, pale, and atrophic. Of course some people have pale gums and are not anemic, and some people have anemia with but little oral change, but the majority of sufferers from pernicious anemia have a characteristic mouth picture.

Physicians should bear in mind that the presence of focalized infection in pernicious anemia may somehow counteract the beneficial effect of the specific liver treatment so that much more liver or potent liver extract is necessary to produce the same amount of blood response in a person harboring some infection than is needed in one who has pernicious anemia without infection. For these and similar reasons physicians sometimes insist on the extraction of teeth that dentists feel should be retained.

2. Jaundice

Of greater beauty than the oral picture of anemia is that seen in the floor of the mouth in jaundice. There are certain parts of the body in which the colors of jaundice are lovely. One is the conjunctiva; another, the mouth. In this latter region it is seen as a pale yellow to golden tinting of the mucous membrane of the floor of the month and under surface of the tongue, the depth of color varying with the degree of jaundice.

Besides our interest in this oral manifestation of jaundice, dentists are vitally concerned with the fact that the coagulation time of the blood of these patients is increased. Consequently, they bleed more freely and the hemorrhage is more difficult to control than is the case of normal people.

Surgeons do not operate on patients with jaundice except in great emergency. Fortunately these cases are usually too sick to consult a dentist. It would be better if dental operations involving the possibility of bleeding were avoided.

3. Purpura Hemorrhagica

A still more spectacular mouth manifestation of a general condition is seen in purpura hemorrhagica. Like jaundice, purpura is a symptom. Medical men use the term to define a number of affections characterized by extravasations of blood into the skin. Under purpura hemorrhagica they include cases of very severe purpura with hemorrhages from the mucous membranes, especially the nose, mouth and genito-urinary tract as well as into the skin. The mouth picture resembles scurvy. In the latter there is usually a history of the specific dietetic error. The oral lesions may be located anywhere in the mouth but the most common points of bleeding are about the necks of the teeth. Here the hemorrhage is profuse. The first indication of the presence of this condition may be an excessive hemorrhage following the extraction of a tooth. Since its treatment is general it is advisable to bear purpura hemorrhagica in mind in cases of bleeding which fail to respond to local measures.

4. ACTINOMYCOSIS

As we break these medico-dental problems into small bits for study and understanding we find many and varied surprises. The veterinarian joins the physician and dentist in an interest in disease. This is illustrated in the condition known in man by the high sounding name of actinomycosis. In lowly cattle it is called "lumpy jaw."

The disease manifests itself in the form of nodules which soften and form sinuses draining anywhere about the mouth or neck. These discharge a thin fluid which usually contains the ray-fungus. It must be differentiated from inflammatory disease such as we frequently see arise from teeth, malignant disease, syphilis, and tuberculosis.

The fact that the organisms of this disease are found in decayed teeth and that the disease occurs in the jaws or neck in 52 per cent of the reported cases leads us to believe that they may travel from decayed teeth by some means yet unknown.

There are on record eight cases of this disease occurring in the spine, a ninth has recently been added by Dr. W. T. Graham and his associates of Richmond, Va. This patient had a primary lesion beneath the lower jaw which healed following a simple incision and drainage. A few months later pain developed in the sacro-iliac region. Laboratory findings at this time revealed the presence of the ray-fungus in the sputum. X-ray examination showed actinomycosis of the upper half of the left lung and of the tenth and eleventh dorsal vertebrae. This man, a dentist practicing in a rural community, may have infected himself with these vegetable parasites from a patient's mouth.

PREGNANCY

No discussion of the inter-related problems of dentistry and medicine would be complete without some consideration of pregnancy.

The barber-dentist of long ago contended himself with the relief of pain by the extraction of teeth. Later on the tradesman-dentist prided himself on perfecting a mechanical machine for mastication. Today the professional dentist is not content solely with the comfort and health of his individual patient, but he must consider the growth and development of the teeth of generations yet unborn.

The theory that the food of an expectant mother should have special attention is not startlingly new. It may not be too far-fetched to say that perhaps the fear of a "bay window" explains why "Jack Sprat would eat no fat," and it is not impossible that dreams of a healthy child kept his wife from eating the lean.

That the amount of food necessary to nourish two people is greater than that required by one seems like common sense, though some dentists believe that regardless of food a woman with good teeth who becomes pregnant will become a mother with good teeth. Any dissent from this opinion they class in the same category as maternal impressions. Others equally sincere believe without question the folkloristic adage, "for every child a tooth."

So much has been written recently on diet in relation to tooth formation that one hesitates to summarize the findings. Miller's theory that tooth decay results from the breaking down of carbohydrates into acids is familiar to us all. Black recognized periods of susceptibility and immunity to dental decay. The day will doubtless come when we will hear more about the influence of heredity on tooth formation. Certain it is that if we paid as much attention to breeding people as we do to hogs and cattle there would be more thoroughbreds and fewer scrubs.

Modern investigators substantiate the observations of Miller and Black but add thereto the belief that immunity to decay depends upon the formation of teeth free from imperfections of calcification. Sound tooth structure, they say, is due to the metabolism of calcium and phosphorus in the presence of vitamins by some unknown activity of the parathyroid glands.

From these theories and the knowledge that some pregnant patients show a transient hypertrophy of the gum tissue, we, as clinical practitioners, can only instruct them in mouth hygiene; eliminate oral sepsis; prevent toothache; replace lost tooth structure; and, unless there is some medical contraindication, suggest a balanced diet.

In carrying out operative treatment there is a serious complication in many parts of the country, because of the lay belief that dental treatment during pregnancy is dangerous. If miscarriages could be produced by dental operations there might possibly be need for concern on the part of organized dentistry, but this is not a fact. Though we remember drug addicts who insisted upon having teeth extracted in order to get an injection of cocaine, there are no cases on record of members of our pro-

XUM

fession being convicted for producing illegal abortions by performing dental operations.

CONCLUSION

Thus we bring our story to a close. Its purpose has been to sketch a few of the many systemic affections showing oral manifestations, and certain equally important dental conditions which result in constitutional symptoms or disease.

It is our conviction that a more closely knit relationship between physician and dentist is needed. Just as the dentist studies the patient's system of mastication, so the physician or physicians study his other systems. These anatomical divisions,—such as the teeth and mouth on the one hand, and, as the case may be, the heart, vessels, and kidneys on the other,—cannot be arbitrarily thought of and treated as separate units, but representing as they do integral parts of one coordinated physiological mechanism, must be so considered and treated. Thus we believe that all special examinations, which reveal local disease with a constitutional association, should be integrated by one man, namely, the patient's physician whose general knowledge of the case will best equip him to direct the order in which the various recommendations for treatment should be applied.

On the other hand, we are also convinced that the degree of infection present in so many mouths would appear far more important were it more exposed to view or did it produce pain. So frequently have we seen symptoms of different kinds relieved by removing chronic infections from various parts of the body, that we can but believe that a dental consultation plays a necessary part in a thorough medical examination.

SOME RECENT ADVANCES IN NEUROSURGERY.

R. F. SLAUGHTER, M. D.,
Norfolk, Va.

Surgical procedures may be divided into three types: (1) Those aimed at removal of pathological structures, such as tumors or abscesses; (2) those aimed at restoring normal anatomical relationships, in which group belong most orthopedic and plastic operations, and, finally, (3) those designed to correct or compensate for physiological or functional disturbances. Although in neurosurgery, as in other branches of surgery, the first is the most common, however, the latter has made the greatest strides in recent years.

PHYSIOLOGICAL SURGERY

A. Operation for the relief of pain.

1. Many patients come to the neurosurgeon each year with severe pain from gangrene on endarteritis. These patients are advanced in years and suffering from a chronic condition that has shortened their lives. We are justified in cutting the final common path to produce relief of pain and a better blood supply if possible. This is best done under local anesthesia. The nerve identified and 95 per cent alcohol injected, after a section of nerve has been tied off. The patient states immediately that the pain has been relieved.

2. Frazier, in Philadelphia, has developed a technique of differential section of the trigeminal nerve in which the mortality is practically nil. He advises leaving the first division, if it is not involved, because of the low frequency of involvement of this division. Others leave the second in elderly people in which the pain only involves the third division. Dr. Putnam, of Boston, has developed a technique of injecting the Gasserian ganglion with alcohol through the foramen ovale by the infra-orbital approach under the fluoroscope (personal communication). There occasionally follows a hemorrhage into the orbital fossa which quickly clears up. This method destroys the ganglion with the same results as the operation, depending upon the amount of alcohol injected as to the number of divisions destroyed.

3. Since Frazier perfected "chordotomy" for intractable pain, many patients have received relief by the hand of many neurosurgeons. Recently unilateral chordotomy has been done in the second cervical segment, with relief of pain in the arm and breast, which has not been dared before because of the fear of medullary failure (personal communica-

tion, Dr. W. J. Mixter). Dr. Putnam, of Boston, has published recently (read at sixth annual meeting of the American Neurological Association, Atlantic City, June 4, 1934), an article on the section of the commissure in the cervical region for relief of pain in the arms from malignant growths. The pain fibers enter the posterior horn, cross immediately or run up 2-3 segments and then cross through the commissure to the spino-thalmic tract and thence to the thalamus. Section of the commissure for 3 segments prevents having to go so high in the cord for relief of pain in the upper extremities.

4. Since Frazier operated upon the first case of tinnitus and dizziness in this country, sectioning the eighth nerve intracranially, Dandy has developed a technique of sectioning the eighth nerve with preservation of hearing in the ear. During one of his operations for Menier's disease, he noticed two filaments instead of one in the position where the eighth nerve should be. He cut the posterior one to see what effect it would have. This section relieved the condition but hearing was preserved. He concluded that the nerve sectioned was the vestibular branch and that the cochlear branch was preserved. Since then this has been the operation of choice. The author has operated upon two cases, one a total section and one a partial section, with relief of symptoms. In the case of partial section, hearing was preserved (*Journal of Otolaryngology*, July, 1934, Vol. 20, pages 1-30).

5. In 1931, in Berne, Switzerland, Dr. A. M. Dogliotti (*Estrallo da Minerva Medica*, Anno xxii, Vol. 1, No. 14, April, 1931), an Italian, called the attention of Dr. Putnam to the subarachnoid injection of absolute alcohol for relief of pain. In 1932, with Dr. Dogliotti's reprint in hand, the author, under Dr. Putnam's direction, did over thirty injections of the subarachnoid space for relief of pain in carcinoma of breast, carcinoma of prostate, primary carcinoma of right pleura, sciatica from gangrene of leg, angina pectoris, tabes and arthritis deformans. Excellent results were obtained in all but two cases of tabes. The most striking result was obtained in angina pectoris. One case, at the time of the injection of .8 c.c. of absolute alcohol into the second dorsal interspace, with the first dorsal the highest, complained of intense burning, around his heart, with a choking sensation. There was flushing of the left side of face, the left pupil was dilated and there was profuse perspiring on left side of face. The maximum effect occurred three-four days after the injection. At this time the patient had no pain and I was severely called down by the medical staff for exercising him in an attempt to bring on the pain. The non-medullated fibers of the sympathetic system are easily affected by the alcohol, even after it has become diluted by the spinal fluid.

MOTOR PHENOMENA

1. It is the feeling of the author that every case of Jacksonian epilepsy should have an air injection, and a very high percentage of these should be explored. Dandy[1] states that, "Tumors represent one of the most common causes of epilepsy at all ages but especially between the ages of fifteen and sixty. About one-third to one-half of all epilepsy, beginning after the age of twenty-five, are due to tumors." It is the author's impression that the percentage is even higher in cases of Jacksonian epilepsy beginning after twenty-five years of age. Excluding tumors, hemorrhages and external hydrocephalus, or subdural hydromas, the results are discouraging as to the relief of the convulsions. Occasionally an old depressed fracture will be helped, and occasionally the breaking up of adhesions will help. All depressed fractures should be elevated to prevent epilepsy.

2. Recently, Dr. Putnam has perfected an operation for dystonia and athetosis, that is quite phenomenal (*Arch. N. and P.*, March, 1933, Vol. 29, pages 504-521). In contrast to Wilson's theory of the mechanism of dystonia, Dr. Putnam worked on the hypothesis that the vestibulo-spinal, rubrospinal and tectospinal tracts carry bizarre impulses from their extrapyramidal centers, take possession of the final common path, and play upon the anterior horn cells, to produce dystonia or irregular involuntary movements that are most distressing. If one of you has seen a case of dystonia musculorum deformans, you have observed a freak of nature that is the most pathetic and hopeless of all neurological conditions. Dr. Putnam sectioned these tracts in the first cervical segment bilaterally. A circular incision is made, a generous 3 mm. from the anterior sulcus to just beyond the attachment of the dentate ligament. Following this, he sections the spinal ac-

1. Practice of Surgery, Dean Lewis, page 336, Chap. 2, Vol. 7.

XUM

cessory and the first three anterior roots bilaterally. This operation is very serious and carries a high mortality, but offers relief.

3. In spastic diplegias, section of every other posterior root will break up most of the spastic reflex arc in the extremity and will afford some benefit to walking. Likewise, the subarachnoid injection of absolute alcohol will do the same thing with good results.

MISCELLANEOUS

1. Within the past year Dr. Putnam has developed an endoscope whereby he is able to coagulate the choroid plexus in cases of internal hydrocephalus. This method of treatment offers the best results from this, at present, rather hopeless condition. Coagulation of the plexus cuts down rather markedly the formation of fluid so that the brain is able to take care of that which is formed in the perivascular spaces. It has been used efficaciously in hydrocephalus following meningitis, and other acute infections (*N. E. J. of M.*, Vol. 210, No. 26, pp. 1373-1376, June 28, 1934).

2. Tidal drainage of the cord bladder has been of great help to the neurosurgeon in preventing genito-urinary infection in injury and after operation. A catheter is placed in the bladder and connected to the apparatus. The apparatus gradually builds up pressure in the bladder depending on the height of the overflow of the syphon. If the bladder is in the stage of cord shock, you have an atonic musculature; consequently, the pressure should not be high, as you would over-distend the bladder. When the syphon is broken, all the urine and fluid have been drained from the bladder; consequently, you are continually exercising the musculature by blowing up and deflating the balloon, and at the same time keeping it clean. After two weeks have passed and the bladder begins to recover, you can increase the pressure somewhat and at the same time encourage the patient to give a sharp jab occasionally in the lower abdomen which will start the bladder reflex and cause a wave of contracture. As these waves of contracture increase, you can measure the tone of the bladder wall by reversing the instrument and connecting it with a manometer. This will give information as to how high the pressure should be to produce the maximal effect on the bladder. Likewise, on the small atonic bladder from chronic infection after cord injury you can gradually distend the bladder by increasing the pressure at the beginning and gradually lowering as the bladder slowly distends. If you change the catheter every week and use one to sixty thousand potassium permanganate solution you will be able to keep the genito-urinary tract free from infection (*N. E. J. of M.*, Vol. 212, No. 6, pp. 229-239, February 7, 1935).

3. Within the last year, neurosurgeons have developed a technique of sectioning the greater, lesser and least splanchnic nerves with three of the dorsal sympathetic ganglia for malignant hypertension. Surprising results have been obtained with lowering of the blood pressure and relief of symptoms. The technique is not difficult in skilled hands and both sides can be done in one and a half hours. Doctors Adson, Peet, Horrax and Smithwick report very favorable results.

4. After X-ray treatment has been tried with no results, excision and drainage of syringomyelia cavities has proven of benefit in relief of symptoms (*New England J. of Med.*, Vol. 205, No. 16, pp. 747-755, October 15, 1931).

In the first field:

1. The trend of development has been in the classification and study of the life history of brain tumors. Some tumors, such as the medulloblastoma, are best treated by massive doses of X-ray, and if an operation is necessary, before and after the operation. Other tumors, such as the spongioblastoma should be resected radically if the tumor is not large and in a suitable location. However, if these tumors are in an unsatisfactory position and large, a biopsy and heavy doses of X-ray are the best methods of choice. The astrocytoma, oligodendroglioma and other more benign types should be removed as completely as possible. Pituitary tumors should be X-rayed and followed by visual field charts before operation is attempted, unless the visual fields are markedly involved.

2. In the traumatic field, the use of the Mosier drain in compound fractures of the frontal sinus in which there is much damage to the frontal lobes has been a great factor in preventing infection. The wound is completely debrided—up to thirty-six hours after the injury. Small pieces of bone removed, dura, and necrotic, hemorrhagic brain tissue is sucked out without irrigation and, after a clean wall of tissue is reached, the drain is inserted and

sewed to the dura. The drain is gradually pushed out with a minimum of scarring and without resulting epileptic attacks. (Munro, personal communication.)

3. Bilateral temporal trephine has been of great value in the diagnosis and treatment of subdural hematoma. The diagnosis is made by suspecting it and bilateral trephine has been the only way to prove its presence or absence. Beyond doubt, its use has shown its value in both the acute and chronic forms (*N. E. J. of M.*, Vol. 210, No. 22, pp. 1145-1158, May 31, 1934).

4. The closed method of encephalography has made encephalography safer and has given better pictures. The fluid is gradually replaced by air, so that the shock of continually changing the intracranial pressure is avoided. We end the procedure with a pressure equal to the lumbar pressure when we started which keeps the veins at their normal size and not engorged. To do this, all the fluid is replaced by air, making the pressure in the ventricle equal to the pressure in the lumbar spine, in contrast to hydrostatic pressure before the replacement, which made the lumbar pressure about 150 and ventricle pressure as minus. This gives us a picture whereby we can see the convolutions, ventricles and even the blood vessels of the brain in contrast, and we have avoided the shock, nausea, sweating and severe headache of the fractional method. Following this, if a 3 to 5 volume per cent of oxygen is given directly into the nasopharynx, or a high concentration oxygen tent is used, the air will disappear in the course of 3 to 5 hours and the patient will be over the effects of the encephalogram by the next morning.

5. Mixer tells us (*New England Journal of Med.*, Vol. 213, No. 9, pp. 385-393, August 29, 1935) that all lower backache with or without pain down the back of the thighs is not always orthopedic but is frequently due to a herniation or rupture of the intervertebral disc into the spinal canal. He states that all of these patients complaining of the syndrome should have a low lumbar puncture. If an increase in protein is found, then a lipiodol injection should be done, using 5 c.c. of lipiodol, and placing the patient on his face. The fluoroscope is used to find a filling defect while the lipiodol is run back and forth in the canal. When the defect is found, a spot plate is taken and the exact location made. Operation is indicated only when the defect is found. The herniation is removed by rotating the cord by the dentate ligament and incising the dura anteriorly. There is an immediate relief of pain and symptoms. These cases show a low backache with pain running down the back of the leg, usually no changes in reflexes, occasionally a loss of ankle jerk in the side affected most, with the patient holding this side stiff as if it were weak, to protect it from pain. Occasionally there may be atrophy of muscles and the history may extend over a period of years.

Wainwright Building.

THE MANAGEMENT OF THE ALLERGIC INDIVIDUAL.*

W. AMBROSE MCGEE, M. D.,
Richmond, Va.

The care of the patient with allergic manifestations requires careful study, cooperation and much patience. Little hope for relief could be offered prior to 1912 when Schloss first began using the skin as an index of specific sensitivity. Since then the large majority of allergic people can secure complete or partial relief from symptoms, provided of course cooperation is observed.

In addition to routine history, physical examination and laboratory tests, the allergic individual requires an additional study. We must inquire diligently into the family history for possible hereditary influences and get a detailed personal history to determine the patient's type of sensitivity, its onset, duration and course, the seasonal variability, if any, atmospheric influences, relationship to food and food dislikes, influence of epidermals and pollens and powders, personal habits and hobbies, occupation and environmental factors. Nasal smears are very important in revealing an eosinophilia. Detailed

*Read before the sixty-sixth annual session of the Medical Society of Virginia, at Norfolk, October 15-17, 1935.

food diary and relationship of some foods to appearance or exaggeration of allergic symptoms is very helpful in some cases. Pollen counts, if not already made, give much information as to the presence and prevalence of certain pollens in a given district. Skin tests are most valuable and furnish much information as regards specific sensitivity.

While skin tests are an important part of the diagnosis and treatment of allergic patients, the tests are used to determine the possible cause of symptoms and not to identify an individual as allergic. Positive skin reactions reveal past, present or future sensitivity. The study of the patient's history, use of white counts after ingesting foods, accurate food diary and the relations of foods to allergic symptoms, and clinical application of offending substances, plus active cooperation of the allergic patient usually aid in helping us find the present cause of trouble. Reliance on skin scratches alone is apt to lead to distress and the patient then loses confidence in further studies of his allergic trouble.

In testing an allergic individual with skin tests, we should use as many testing materials as are applicable to the person tested and the district in which he lives. Both scratch and intradermal methods should be employed but the latter method should be preceded in part or in toto (if the patient is markedly sensitive to the scratch tests) by the scratch tests. The intradermal tests are more delicate and at times may give rise to constitutional reactions. Intradermal testing materials in untrained hands are somewhat comparable to explosive substances in the hands of an amateur chemist. The amount of fluid injected into the skin should not exceed 0.01 c.c. and the technique of giving it is highly important. Interpretation of the tests is based on the size of the wheal, the pseudopods or erythema, or all of these local reactions. Experience rather than any arbitrary standard is required to interpret properly the skin reactions. The preparation of the intradermal antigens should be undertaken only by experienced hands. We should use materials which by clinical tests in a large number of allergic patients have given an accurate estimate of their biological value. As commercial antigens deteriorate in time, fresh solutions should be used as often as possible and they should be kept on ice. Owing to severe constitutional reactions which occasionally follow intradermal testing, that procedure had best be left to those experienced in its use. While there are arguments pro and con in comparing the relative values of scratch and intradermal tests, the majority of allergists seem to be greatly in favor of the intradermal tests. Both tests are valuable and necessary for best results.

When skin testing an allergic individual it is wise to test with all ordinary foods, pollens, epidermals and powders with which that individual comes in contact. Those who rely upon a few scratches and a personal history, can get no complete idea of the offending substances and in consequence, less favorable relief or no relief is apt to follow. Very sensitive individuals should have retests every six to twelve months unless they are free from symptoms. That is especially true for infants and children who are food sensitive, as their sensitivity changes fairly rapidly.

Probably the most generally overlooked allergic disturbance is mild nasal allergy. We often see individuals who have itching of the nose associated with some degree of stuffiness, sneezing and watery discharge. Itching is a very important allergic lead no matter whether it occurs in the nose, eyes, throat, ear canals or skin. Where there are repeated "head colds" without fever, especially if associated with nasal itching, stuffiness or sneezing, we should be on our guard as such a condition will often be found to be allergic rhinorrhea, or allergic rhinitis as it is commonly called. Allergic "head colds," especially seasonal ones, are greatly influenced by a few rainy days and the sneezing in the allergic rhinitis individual is paroxysmal and persistent. A nasal and blood eosinophilia point to an allergic nature. Unless the nasal symptoms are severe, the diagnosis of allergic rhinitis or mild hay fever is not often made and later those individuals may gradually grow worse and then develop an additional type of allergy. The nostrils of such individuals usually show pale and boggy turbinates while the infectious rhinitis patient's turbinates are injected and the secretion is filled with many neutrophiles. Unfortunately, such allergic individuals have nasal and oral operations before a thorough attempt is made to find the offending proteins or pollens and then treatment given for same. Many patients with mild nasal allergy are told they have sinus infections and, unless the allergic nature is properly cared for, the treatment for the sinus infection will be unsatisfac-

XUM

ory or unsuccessful. While such operative procedures may be indicated, it is felt by allergists that unless there is much interference with nasal drainage, operations had better be postponed. Proper care of such allergic patients will often result in relief of symptoms and operations may later be found unnecessary. It should be remembered that seasonal nasal allergic disturbances are due mainly to pollens but occasionally to seasonal foods. Perennial allergic rhinitis is more apt to be due to epidermals or powders (as orris root) or foods. With seasonal exacerbations in the perennial case we should think of pollens in warm weather and environmental factors in winter. Attempts to treat such individuals without proper skin tests is without avail. Elimination of foods or epidermals by guess or change of climate or altitude without proper pollen study will result in failures in most instances.

In the treatment of eczema in both infants and adults, it is essential to remember that foods are not necessarily the only cause, but that pollens and epidermals are frequently the main offenders. If an infant develops severe eczema while on breast milk, it is not necessary to wean him if he is doing well otherwise. He can be tested against his mother's foods or the indirect method of testing can be performed on his mother if she is non-allergic, or on a third person if his mother is allergic. The offending substances, be they foods, pollens, or epidermals, can either be removed or treatment can be undertaken to build up a tolerance to the pollens or epidermals. No food antigens are used for treatment. Of course other measures to soothe the skin should be used and in case of epidermal offenders, they should be removed.

It is usually thought that urticaria is due to the protein of foods but experience will show that it is often due to epidermals, pollens, powders, and drugs. The intradermal tests are far more informative in this group. Avoidance of offending foods for six to twelve months will often result in a tolerance for most of these foods. Treatment with antigens in cases of epidermal or pollen sensitiveness is very successful. It is difficult to avoid contact with epidermals and such powders as orris root, as an individual sensitive to them comes in intimate relation with those substances in all houses and public places. It is also essential to inform the patients of the source of such epidermals, pollens and powders and the various articles manufactured that contain them, so they can be avoided as much as possible.

The asthmatic individual requires more study, cooperation and patience, and often additional laboratory procedures as X-rays and blood studies. This group comprises the largest single one of allergy, a fact that is well known. The earlier the individual with asthma is studied, the better perhaps the result. About 50 per cent of the eczema of infancy develop asthma of childhood. At times it is difficult to tell whether or not a patient who wheezes has asthma. In such individuals the family history of allergy as well as a detailed personal history is helpful. A blood and nasal eosinophilia, physical examination, X-ray of chest and sinuses, presence of some other allergic symptoms, lack of fever, and response to epinephrin, point to a diagnosis of asthma. Piness and Miller have seen many cases of recurrent bronchopneumonia which appear to be allergic in character respond favorably to adrenalin and recur in the same locality. Asthmatics sensitive to foods should, of course, eliminate those foods in every way and when sensitive to pollens or epidermals should be hyposensitized to one or both groups. It may be necessary to repeat the antigen for one or more times if symptoms persist after treatment has been stopped.

In treating any type of allergic patient with injections of antigens, it must be realized that no set rule of dosage can be applied to all. It is necessary to consider the patient's sensitivity, his local and constitutional reactions, his environment and occupation, and associated physical factors and the atmospheric conditions under which he lives. The dosage and the interval between injections has to be changed repeatedly to suit the individual in question. Some allergic patients can tolerate large doses of antigens while others are never able to stand but the weakest dilution, and yet they get relief of symptoms. Where individuals are sensitive to pollens, it is wise to begin treatment three to four months ahead of the onset of symptoms. Co-seasonal and perennial treatments are also used but the majority seem to prefer the perennial method. Usually it requires about three years of treatment with pollen antigens to afford great relief.

Such disturbances as migraine, abdominal pain, irritable colon, unexplained severe headaches,

XUM

periodic vomiting, and localized edema may or may not have an allergic background. The burden of proof is on the allergist who must first prove the individual in question is allergic before attempting to find specific sensitivity. One should not become over-enthusiastic in advising such a patient he may look for relief, unless such symptoms develop in an individual who has been definitely proven to be allergic in the past.

The proper care of the allergic individual requires much study, a detailed family and personal history, investigation of the type of disturbance, together with its time of occurrence and severity, the influence of atmospheric conditions and the patient's occupation, habits, hobbies and environment. This investigation, of course, is in addition to the usual history, physical examination and routine laboratory tests. Skin tests, especially the intradermal type, are necessarily a big factor in finding the offending substance or substances. Skin tests are limited in that they are only confirmatory of already existing allergic diseases and for positive tests to be of value they must be corroborated etiologically by the clinical history or vice versa. The etiology, symptoms and treatment are identically the same in both infants and adults; in fact, so far as allergy is concerned, an infant is a little adult. No set dosage should be routinely followed in attempting to build up a tolerance to an antigen or antigens. The dosage and interval of injections should vary according to the patient's reaction, environment, occupation, habits, or hobbies, and such influences as atmospheric factors or continuation of symptoms have to be taken into consideration. Repeated skin tests should be employed at intervals of about six months or a year where symptoms have not abated or have recurred.

616 West Grace Street.

DISCUSSION

DR. OSCAR SWINEFORD, JR., University: Dr. McGee's paper, I think, covers a tremendous amount of territory, and if you will take the time to read it when it comes out in the VIRGINIA MEDICAL MONTHLY, and digest the many important and very practical points which he makes I think you will find it well worth your time.

There are several points which I think might be emphasized a bit. He mentioned leukocyte variations in the diagnosis of allergic affections. Leucopenia is one of the cardinal manifestations of anaphylactic shock. Dr. Warren T. Vaughan observed, while doing some of the colloidoclastic or hemoclastic crisis tests of liver function, as advocated by Widal, that some of the patients who responded by leucopenia to the ingestion of milk were clinically sensitive to milk. From this beginning he showed that in a high percentage of cases a person sensitive to any food will, upon the ingestion of that food, have a leucopenia of over 1,000 cells within an hour or so. He calls this test the Leucopenic Index. He finds it a very helpful supplement to the skin test in establishing an etiological relationship between various foods and the various allergic manifestations.

Just two things about skin tests. They are extremely valuable, but it must be remembered that they can only give us diagnostic leads which must be verified clinically. A person with a four-plus reaction to ragweed or wheat is not necessarily clinically sensitive to them and does not necessarily need treatment. I think nearly half of the definitely positive skin tests I see fail to be borne out clinically.

The other point about skin tests is that they vary. A skin test is not a standardized, uniform procedure like the leucocyte count. It is too bad it isn't. It is obviously impossible to test every patient with an extract of every substance he comes in contact with and yet anything he comes in contact with by ingestion, inhalation, or absorption may be the cause of his trouble. The upshot of this situation is that each allergist tests routinely with a greater or lesser number of substances which in his experience, and in the literature, are the commonest causes of the allergic diseases. The experience of all allergists is not the same, hence their tests will not be the same. The practical thing is that a "negative skin test" does not mean that the patient is not allergic. It probably means that he was not tested with the substance to which he is sensitive, that the extract was inactive or too dilute, or that the test was done too soon after a dose of adrenalin.

My paper this morning was prompted by the desire to emphasize the necessity for supplementing the fallible but indispensable skin test in our diagnostic armamentarium.

Nasal Allergy: It is my opinion that a large percentage of the people who have stuffy noses are mildly sensitive to some common allergen such as feathers, cigarette smoke, face powder, wheat, etc. Before any operation is done for the relief of chronic nasal symptoms the possibility of an allergic basis for these symptoms should be ruled out.

I do not think any allergic nose should be operated upon which, under shrinkage, has sufficient breathing space. It is only upon those in whom adequate breathing space cannot be secured by shrinkage that operations should be done.

Dosage in Specific Treatment: It is often the case that a person will do better with a small dose than a large dose. I have sometimes kept patients from improving for several weeks because I was giving too large a dose of the antigen. In general, if a person does not improve try smaller instead of larger doses.

DR. MCGEE, closing the discussion: I enjoyed Dr. Swineford's discussion and think he brought to our at-

ention many essential points. I simply wish to emphasize some of them.

About the leukocyte's response, I had a long talk with Dr. Rinkel, of Kansas City, in 1931 and at a recent date, and he has thought it quite useful, provided the individual can do a white blood count in a very accurate manner. A difference of three or four hundred cells does not mean much, but if you can get a difference of more than five hundred cells it is of much significance.

In reference to skin tests being leads I agree entirely. I think you have to sum up all your different findings before you can begin to treat your patient properly.

Nasal smears are often helpful in diagnosing allergic disorders.

If you will make an accurate food diary and put down the actual symptoms as they occur, you will get much information and can often find the offending substances.

I think you have to know what test materials you are using. Personally, I do not care for powders. I had powders before I went into this work, and I do not think they give as much information as liquid extracts. I had the good fortune to be working with a chemist who has been making his own extracts for years and I use those he prepares which have been clinically proven on tens of thousands of allergic patients.

With reference to a stuffy nose, I do not think we can overemphasize that. People unjustly accuse allergists of riding hobbies and going off at tangents and being crazy. But if you keep your feet on the ground I think you can help a lot of people who in the past have suffered. A lot of people with sinus infections are allergic, and if you remove the offending cause or causes you have a much better chance and a scientific manner to overcome the trouble. I do not mean there are not cases of real sinusitis, but often they are allergic, and allergy causes swelling of the turbinate bones and also swelling inside the sinuses, so you get blocking within and without. You can often get some very splendid results by treatment of the allergic condition in these individuals. Cooperation between allergists and other physicians assures far better results than is possible by either alone.

TRICHOMONAS VAGINAL INFESTATION: A DISCUSSION OF THE PARASITE, THE COURSE OF THE DISEASE AND TREATMENTS.*

JOSEPH B. SALBERG, M. D.,
and
WALTER M. BRUNET, M. D.,
Chicago, Ill.

The true role of the trichomonas as the cause of persistent and at times intractable leucorrhea has not been established. Since Donné in 1832 first described the unicellular organism which he called the trichomonas, a number of physicians have contributed to the study of the parasitology of the disease, described the variety of its clinical pictures and recommended a multitude of remedies for its cure. There are two strains of the parasite which are recognized; viz., the trichomonas hominis, which is found rarely in smears and cultures from the mouth and intestinal tract; and the trichomonas vaginalis, which is discovered in the vaginal secretion. The organisms have some characteristics in common. All of the cultures have a characteristic odor and form gas. The strains which have been isolated from the mouth and lower intestinal tract of apparently normal individuals are usually smaller and somewhat less active, and are more difficult to culture than those isolated from the vagina. Several observers have reported that the trichomonas vaginalis has a larger undulating membrane than does the trichomonas hominis. The strain of the parasite from the vaginal secretions produces a peculiarly offensive, sourish odor. Our knowledge of the life history of these protozoa is incomplete, and how an organism whose habitat is the human body should be able to produce so prolonged and severe an inflammation of the vaginal tract and not attack the mouth and throat or the intestinal mucosa is a mystery. Undoubtedly there is a tissue susceptibility of the vagina—sensitization of an unknown source—in women who are infected. Stein[1] and his coworker at the Mandel Clinic of Michael Reese Hospital have grown the organism from the urine of pregnant women; eighty-eight such cases were discovered in a series of 889 patients. In a selected group of sixty-one patients, Stein found trichomonads on immediate examination and successfully

*From the Women's Division of the Public Health Institute, 159 North Dearborn Street, Chicago.

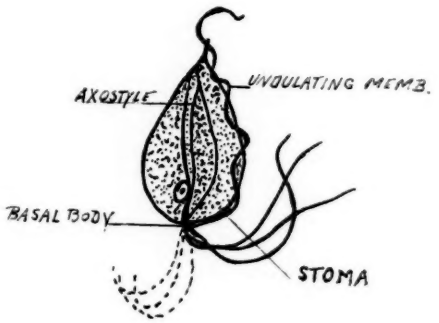
cultured the organism from the vaginal secretions in fifty-eight patients, from catheterized specimens of urine in five patients, from the stool in three patients and from the gums in four patients. In one patient he found trichomonads in the vaginal secretion, the urine and the saliva.

There is agreement among students of this subject that the clinical signs are easily recognizable and are common, and that the protozoa are readily demonstrated when they are the cause of the complaint. They are observed best in fresh salt solution or tap water by the hanging drop method. Slides stained with methylene blue enables one to study other organisms which may be present in the discharge.

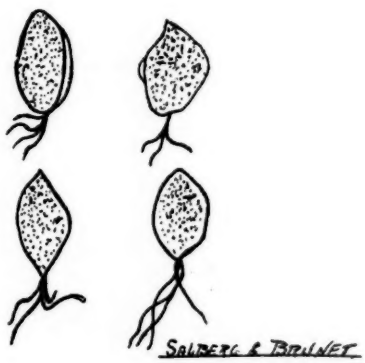
The pathogenicity of the organism is still in doubt and many gynecologists and parasitologists think that other organisms found in the vaginal secretion prepare the soil for the entrance of the trichomonads. In acute gonococcal infections trichomonads are rarely seen, but are often found in chronic and latent gonorrhea. Some physicians believe that the primary factor in these infections is a fungus, Monilia, and that the trichomonas occurs symbiotically as a non-pathogen. Plass[2] has reported his experiences in a series of cases. Curtis[3] has shown that Doederlein's bacilli and various other cocci and bacilli are often found associated with trichomonas infestations. The part which they play, however, if any, in the clinical picture as seen by the physician is unknown. In many studies of the flora of the vaginal tract it has been demonstrated that the organisms commonly found in healthy individuals and in non-specific symptomless leucorrhea are frequently associated with the trichomonads. The fact that trichomonads are rarely found in acute gonococcal infections and yet are observed in chronic specific cervicitis, leads one to surmise that there is an unknown characteristic of cell protoplasm and tissue fluid which under certain conditions exerts a specific influence and causes the trichomonas to become pathogenic.

Obviously there are many factors which affect the reaction of body fluid and these may conceivably play some part in the symptom complex of trichomonas vaginitis. Consider, for example, the intake of a wide variety of food substances, the digestive activity, secretion and excretion, menstruation, pregnancy, etc. Do the ductless glands exert some unknown influence? If we possessed a more comprehensive understanding of the complicated chemistry of the body, the answer to the trichomonas infestations might be very simple. Studies in this direction have been few and those which have been undertaken have been expensive and out of all proportion to their practical usefulness. We must admit that at the present time we are groping when we endeavor to explain the cause and effect relationship in trichomonas vaginitis.

Structure of Trichomonas Vaginalis



Varieties of Trichomonas Vaginalis



COURSE OF THE INFECTION

The most frequent complaint which brings the patient to the physician is a vaginal discharge. In the majority of cases there is an increase of the symptoms prior to and following the menses. Many patients will give a history of an acute vaginal dis-

charge which subsided without medical attention only to recur at the subsequent menstrual epoch. A leucorrhea, usually copious, watery, and foaming or frothing, beginning somewhat suddenly with external smarting and a very disagreeable, sourish odor, is the usual subjective finding. About 30 per cent of the cases will complain of pain and burning on urination and frequency. Upon vaginal examination the vulva in most cases appears inflamed, and small, granular, hyperemic or punctate lesions in the vagina and on the cervix may be observed. The urethra is often found inflamed. The examination of the discharge by the hanging drop or the wet-slide method with the identification of the parasite completes the diagnosis. Should there be a history of some change in the sexual life of the woman, or her husband or lover, the patient may think she has a venereal infection. Physicians who are not familiar with the vaginal flora and who fail to examine slides of the vaginal discharge in these cases will frequently err in the diagnosis. In all patients with a vaginal discharge gonorrhea must be considered.

TREATMENT

Three principles of great importance are to be observed in the treatment of this infection: viz., the maintenance of efficient drainage; the use of a weak antiseptic to destroy the parasites which can be reached; and mild stimulation of the tissues to increase their resistance to the trichomonads. Gentle cleansing of the entire vaginal tract with tincture of green soap and water, using cotton sponges, is important as a preliminary measure in any type of treatment. There can be no doubt that in many cases vigorous scrubbing of the inflamed vaginal mucosa has a tendency to increase the penetrability of the tissues, produce more discharge, add to the discomfort of the patient, and prolong the infection.

The varieties of treatment schemes are legion and no single plan has worked well in all cases. In our experience, 80 per cent of the cases will be controlled by simple methods but the remaining 20 per cent will be subject to recurrent exacerbations and a few patients will suffer despite all efforts. We have carefully investigated clinically many types of treatment and have demonstrated to our complete satisfaction that at this time the powders are the most efficacious.

For many weeks we studied a small group of sixteen patients who received a careful and gentle cleansing of the vaginal canal with soap and water followed by drying with absorbent cotton. The drying process was completed with the use of an electric hair dryer such as is used in barber shops. In order that the drying was thorough, a flexible extension tube one-half inch in diameter and eight inches long, which fitted the end of the apparatus and passed through the lumen of a glass speculum, was used. Following the drying, the vagina was filled with a compound of fuller's earth, kaolin and talc.

In this group of sixteen cases the symptoms had been present from one to fifty-two weeks. The average duration of the complaint was three months. In three instances the trichomonas infection followed an attack of gonorrhea. The youngest patient was nineteen and the oldest thirty-seven years of age. The number of treatments varied from one to twenty-two; the average for the group was seven. In eleven cases no improvement was noted and in two cases slight relief was observed for a short while, but there followed a prompt recurrence. In six patients a cure was only obtained after cauterization of the cervix.

The essential data concerning these patients is given in Chart I.

Another method of treatment which was used with unsatisfactory results was a modification of the technic suggested by Drs. Holden and Kleegman.[4] They advised instillation into the vagina of pyroligneous acid and, following this, the application of Lassar's paste. Six patients in our clinic were treated with the pyroligenous acid but we omitted the Lassar's paste and substituted suppositories of metaphen 1-2000 in a boroglyceride base. In two of the patients the treatment was used only once. One patient developed a large ulcer on the cervix and in another an ulceration of the vaginal wall was observed. We found the pyroligenous acid very irritating even when it was diluted one-half strength, and abandoned its use at once.

Still another kind of treatment used consisted of spraying with a hand atomizer of a solution of stovarsol into the vagina following a thorough cleansing of the canal. Several reports from the literature, particularly the one of Gellhorn,[5] praised highly the efficacy of this drug. In twenty cases which we treated for several weeks, about half experienced relief from their symptoms but the end-

XUM

CHART 1
CASES TREATED WITH DRY AIR*

	Age	Comp.	Symp. Pres.	No. Treat.	Imp.	Unimp.	Remarks
27673	22	Disch.	6 mo.	9	0	x	
28941	26	Disch.	2 mo.	3	0	x	
27620	21	Disch.	8 mo.	2	0	x	
27957	24	Disch.	9 mo.	1	0	x	
27688	25	Disch.	2 wk.	4	0	x	Cautery performed.
27714	25	Disch, Dys.	2 dy.	1	0	x	
27746	23	Disch.	4 mo.	11	x		
28351	33	Disch. Dys.	2 mo.	6	x		
28356	23	Disch. Dys.	3 mo.	8	0	x	
28372	37	Disch. Dys.	3 wk.	22	x		Cured after cautery and metaphen.
28388	27	Disch. Dys.	1 wk.	16	0	x	
28640	37	Disch.	6 wk.	6	0	x	
28873	20	Disch. Preg.	1 mo.	7	x		Recurrence. Cautery.
28743	25	Disch.		9	0	x	
28707	23	Disch.	1 mo.	3			
28911	19	Disch.	1 wk.	4	x		Dysuria

*Following the drying process a generous amount of a simple powder, consisting of fuller's earth, kaolin and talc, was placed in the vagina.

results were inferior to other and less expensive methods. This procedure was discarded after a short trial.

We also tried in a small series of resistant cases a solution of silver picrate (silver trinitrophenolate), sold under the trade name of picratol. About half an ounce of this solution was instilled into the vagina and a tampon inserted, which was removed in two hours. Several of our gynecological confreres gave high praise to its efficacy but we had no luck with it and its use was discontinued.

At the present time we are using a powder consisting of oxyquiline sulphate (chinogau), boric acid and talc. Following careful and gentle cleansing of the vaginal tract with tincture of green soap and water the powder is deposited in the upper vagina with a straight glass tube blower. These treatments are repeated for several visits at twenty-four hour intervals and then at longer periods. We feel that this treatment has given us the best results of any therapy to date. We expect to report in detail at a later time on the results of this method of treatment in a large series of patients.

CONCLUSIONS

1. The relationship between trichomonas vaginalis and persistent leucorrhea has not been established, although the symptom complex is a common one.

2. Proof is lacking as to the part played by the two strains of the parasite, viz., trichomonas hominis and trichomonas vaginalis, in vaginal inflammations.

3. The possibility of the infection being precipitated by a tissue sensitization of unknown cause is discussed.

4. Trichomonads are rarely found in acute gonococcal infections of the cervix, but are often discovered in chronic gonococcal infections. Why?

5. The course of the infection and several varieties of treatment are discussed.

6. Gentle cleansing with soap and water followed by a careful drying with cotton swabs and the use of an antiseptic powder containing oxyquiline sulphate, and metaphen suppositories for use at home, is a valuable method of treatment in our clinic.

REFERENCES

1. Stein, I. F. and Cope, E. J.: *Amer. Journal Obst. and Gyn., 25*:819, 1933.
2. Plass, E. D., Hasseltine, H. C., and Bortis, I. H.: *Amer. Journal Obst. and Gyn., 21*:320, 1931.
3. Curtis, A. H.: *J. A. M. A., 124*:1706, 1920.
4. Kleegman, S.: *S. G. O.*, October, 1930, page 552.
5. Gellhorn, G.: *J. A. M. A., 100*:1765, 1933.

PRESENT-DAY MANAGEMENT OF CARDIOSPASM.*

E. TRIBLE GATEWOOD, M. D.,
Richmond, Va.

A discussion of so-called cardiospasm today is not entirely unlike discussions of this subject many years ago, because the pathogenesis is still debatable and the treatment remains essentially mechanical. The early symptoms of this disease are, chiefly: sensation of fullness about the neck; excessive accumulation of saliva; and a desire to swallow unnecessarily with or without discomfort. At this time, many of these patients may not have fully developed cardiospasm, but are experiencing muscular dysfunction in the lower portion of the throat and the esophagus. These symptoms may easily be ignored or regarded as imaginary and treated on an empirical basis. During this period the disease becomes further advanced and many months later classical symptoms usually appear, namely: sub-sternal discomfort; difficult swallowing; regurgitation and emaciation.

If the early group of symptoms is recognized, we should be able to diagnose many of these cases before complete secondary dilatation of the esophageal lumen develops.

From a review of the literature, it would seem that few of these conditions are recognized and referred to the roentgenologist for study in the formative stage, though a careful study of the history given by patients in the advanced stage of the disease will usually elicit that symptoms of this nature did exist many months previous to the development of the classical symptoms.

The definition of the condition commonly known as cardiospasm has been debatable for many years. From a pathogenic point of view, there has been a great diversity of opinions based upon many investigations of equal importance.

Studies by Mosher, Plummer, Jackson, Brown-Kelly, Hurst and others have done much to elucidate some of the many problems which this condition presents. Many leading authorities do not recognize this type of stricture in any sense a true spasm. Esophagoscopy has probably done more to disprove the spasm theory than any one or all methods of study. Direct inspection through the esophagoscope rarely reveals a resisting spasm.

The cardiac portion of the esophagus is that portion below the diaphragm which joins the stomach, and many investigators have expressed doubt as to whether or not there exists a true sphincter muscle at this particular area. However, recognition is made of the fact that the arrangement of the muscle fibers is different at this point.

Jackson has expressed the belief that the dysfunction does not exist in the cardiac portion of the esophagus at all, but rather in that portion of the esophagus which passes through the diaphragm and is known as the hiatus. He speaks of the condition as "preventriculosis" because he feels that the disease is neither in the cardia nor spasmodic in nature.[1]

Mosher's extensive studies, including a large number of autopsies, esophagoscopies and histologic sections, lead him to conclude that, in most cases, there exists a fibrosis of the periesophageal tissue in the crural ring, and a fibrosis of the musculature of the esophagus below the diaphragm.[2]

Hurst thinks that the functional obstruction is due to the fact that the peristaltic waves which pass down the esophagus in swallowing are not followed by relaxation of the cardia, which is due to organic disease of Auerbach's plexus of the lower esophagus. He quotes Ruke and Cameron in this contention.[3]

Craig, Vinson and others, of the Mayo Clinic, regard the disease as the result of degenerative changes in the vagal nerves and predominant activity of the sympathetic nervous system.[4]

With the many speculative theories advanced, it is readily seen that there is nothing definitely known

*Read before the Richmond Academy of Medicine, November 12, 1935.

about the cause of this disease. It is generally assumed that the lesion involves the esophagus at or below the level of the diaphragm and the cardia is not necessarily spasmodic.

Fig. 1.—Cardiospasm in early stage. No dilatation.

The disease is not limited to any period of life nor is it peculiar to either sex or race. The subjects are not necessarily neurotic nor related to any habit disease. The condition does appear to be primarily functional and, with long existence, it tends to develop definite organic changes.

The diagnosis of cardiospasm is very simple in fully-developed cases, but to recognize these cases before the late symptoms develop requires a careful history, consideration of vague symptoms, and repeated roentgen-ray studies. Difficult swallowing,

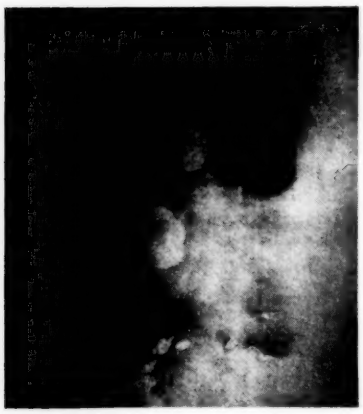


Fig. 2.—Cardiospasm in second degree stage. Moderate amount of dilatation.

regurgitation, cough and loss of weight are late symptoms and are usually associated with cases in which organic changes have become established.

Pain was noted in 262 out of 500 patients examined at the Mayo Clinic, and nocturnal regurgitation was complained of in 181 patients of the same number. Cold fluids alone frequently excite dysphagia, when various types of solid foods may be swallowed with no appreciable discomfort. Nocturnal cough is often produced by regurgitation of stagnant fluids when the patient is in the recumbent position. Excessive accumulation of saliva at night is said to be caused by esophageal blockage and may be regarded as an early symptom. Patients presenting symptoms of this nature should be first studied with the fluoroscope and a barium meal. The diagnosis remains to be confirmed, however, by esophagoscopy. The typical conical constriction of cardiospasm visualized by the barium fluid cannot be definitely relied upon to exclude malignancy, cicatricial stenosis following peptic ulcer and allied lesions.

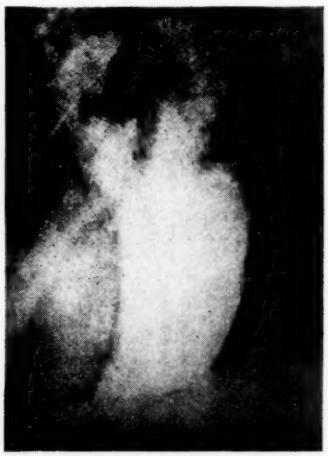


Fig. 3.—Typical advanced case of the fusiform type.

Carcinoma of the lower esophagus in its variable stages is often confusing. Roentgen-ray study is usually convincing for carcinoma when the barium column is irregular with abrupt stoppage at the lower end. However, biopsy must be relied upon for a positive diagnosis. Winkelstein recently reported six cases of esophageal peptic ulcer with secondary spasm which, in similar instances, may be confused with mild cases of cardiospasm until esophagoscopy is performed.[5] Angio-neurotic edema of the esophagus is said to be difficult to distinguish from cardiospasm before dilatation has fully developed. Jackson has shown cases of this nature with marked stenosis.[6] Moersch and Camp, of the Mayo Clinic,

reported last year a group of cases presenting signs of constriction of the lower portion of the esophagus, which they regarded as a new clinical entity.[7] There was no dilatation above and no association with any organic lesion. Further study and observation of a greater number of similar cases may associate this entity with cardiospasm in its early stage.

In general, the treatment of cardiospasm is dietary and mechanical. However, there are some psychoneurotic factors in certain cases that demand consideration. The nervous element in these cases is undoubtedly aggravated by the extreme emaciation and fear of failure to swallow. Medication plays little or no part in giving these patients relief. According to Gun's experiments, atropine has no relaxing effect on the cardiac portion of the esophagus. He studied many of these cases with the fluoroscope after administering the drug in massive doses. Patients who have developed marked dilatation of the walls are frequently so uncomfortable that it becomes necessary for them to wash out their esophagus before retiring. It is said that the closed cardia can

Fig. 4.—Pear-shaped type with extensive dilatation.

support an eight-inch column of water. Hence, the dilated esophagus is usually filled with stagnant foods and fluid.

The diet is of considerable importance. Certain foods will immediately precipitate an attack. Others tends to create a soothing effect. Coarse and highly seasoned foods are poorly tolerated. Cold drinks of any kind frequently aggravate the condition. Ice cream and ices are particularly harmful. In general the diet should be warm and smooth.

Local treatment to the lesion itself has always attracted considerable interest. Mikulicz, in 1882, proclaimed this condition spasmodic in nature and practiced stretching the cardia with fingers introduced from below, through the stomach.

Fig. 5.—Mosher's barium striped pneumatic dilator *in situ*. Central constriction indicates cardiospasm resistance.

Bougies have received wide attention in the treatment of this condition. However, Brown-Kelly believes that the passage of sounds and bougies is helpful only in slight cases. Lesions of short existence are frequently benefited by this method. Sometimes in these cases the passage of the esophagoscope alone gives relief.

It is difficult to place dilating instruments in a diseased esophagus accurately, by blind methods. To do so is to subject the patient to unwarranted hazards which may prove fatal. This is particularly true of chronic types with thin dilated walls. Since the advent of the esophagoscope, we have learned more about diseases of the esophagus with an improved application of treatment.

There are several forms of dilators in use today, such as the Plummer hydrostatic bag, the Hurst mercury apparatus and the different types of pneumatic devices, all of which serve a useful purpose. The instrument itself is of less importance than the manner of application. The first introduction of a dilator should be visualized either directly through the esophagoscope or indirectly through the fluoroscope, depending upon the nature of the individual

lesion. However, in certain cases it is often necessary to enlist the aid of a string guide—that is, to have the patient swallow several feet of surgical thread weighted with a shot. This should be done the night before the introduction of the dilator so that the string may be well located in the intestines. Before the dilator is inserted, the proximal end of the string is passed through its tip and made taut for a guide.

Tucker has ingeniously devised a pneumatic dilator that can be passed through the esophagoscope and expanded under direct vision. This instrument is of especial convenience in that it may be used at the time that the patient is being examined with the esophagoscope, to confirm or disprove the original diagnosis. The Tucker instrument and the string guide probably offer the best method of treating unusual or difficult cases with precision and safety.[8]

Mosher considers, as a rule, the barium striped bag as the most satisfactory means of dilating the lower end of the esophagus.[9] The barium striped pneumatic dilator of his design used in conjunction with fluoroscopic guidance during the initial insertion constitutes a modern, safe and efficient procedure in the treatment of the fusiform type of case. After inserting the Mosher dilator, the apparatus is manipulated through the constricted portion of the esophagus under the guidance of a fluoroscope. The graduated measurement on the tube is noted at the patient's upper teeth. The measurement may then be used for subsequent insertions of the instrument upon the same patient, without the aid of the fluoroscope and with dependable accuracy.

It is preferable to give a series of stretchings with graduated pressure rather than to use maximum pressure at the first sitting. Sufficient pressure should be used to cause the patient a definite sensation, but not enough to cause severe pain. The dilator is left in position after inflation from one to four minutes, depending upon the patient's reaction.

It is astonishing, in many cases, what one dilatation will accomplish. The patient will immediately begin to swallow with impunity. However, in other cases, repeated dilatations may be necessary to maintain the patient symptom free. Long existing cases are more difficult to relieve and the extensively dilated walls usually remain stationary.

BIBLIOGRAPHY

1. Jackson, Chevalier: Bronchoscopy and Esophagoscopy. W. B. Saunders Co., Philadelphia, 1927.
2. Mosher, H. P.: Fibrosis of The Terminal Portion of The Esophagus, 1930, Minneapolis, Proceedings of Inter-State Postgraduate Medical Assembly of North America.
3. Hurst, A. F.: Some Disorders of the Esophagus. *Journal A. M. A.*, February 24, 1934.
4. Craig, Moersch and Vinson: Staff Meeting Proceedings, Mayo Clinic, December 12, 1934.
5. Winkelstein, Asher: Peptic Esophagitis, March 16, 1935.
6. Jackson, Chevalier: *Archives of Otolaryngology*, April, 1930.
7. Moersch and Camp: *Annals of Otology, Rhinology and Laryngology*, December, 1934, Vol. 43, No. 4, Page 1165.
8. Tucker, Gabriel: An Endoscopic Dilator for Stretching the Hiatal Esophagus in Preventriculosis. Transactions of the American Bronchoscopic Society, July 6, 1929.
9. Mosher, H. P.: *Annals of Otology, Rhinology and Laryngology*, December, 1927.

Professional Building.

PULMONARY HEMORRHAGE.*

J. B. NICHOLLS, M. D.,
Catawba Sanatorium, Va.

Pulmonary hemorrhage includes the expectoration of blood from the lungs, bronchi, trachea or larynx. It may consist of the spitting of very small amounts of blood, so-called streaking or blood-streaked sputum, to copious amounts of as much as a quart or more, and it may occur over a period of a short time or the recurring hemoptyses may extend over a period of several days or weeks

Any inflammatory process resulting in an active hyperemia, as well as a passive congestion, may cause the spitting of blood. It may come from blood vessels of any size—capillaries, arteries or veins. It may come from an exudative process as a result of inflammatory changes in the lungs. As a general

*Read before the Southwestern Virginia Medical Socity at Galax, Va., April 2-3, 1936.

rule, the larger the quantity of blood expectorated, the more extensive and more marked is the inflammatory condition present, and large hemorrhages often come from the rupture of a large blood vessel, where the blood vessel wall is weakened or where there may be aneurysm of the blood vessel.

Authors enumerate a large number of conditions or diseases which may cause pulmonary hemorrhage, some mentioning fifty or more conditions which will cause bleeding from the air tract, excluding the nose, pharynx, mouth and accessory sinuses.

It is not our purpose to take up every one of these conceivable things which may cause pulmonary hemorrhage. We wish to present some of the most frequent causes of pulmonary hemorrhage, some of the things that you and I see in practice from day to day, or some of the things we see that frequently cause hemoptyses.

Before taking up some of the conditions which we wish to mention, there are two things that we may have in mind with reference to pulmonary hemorrhage: First, the diagnosis or what is the cause of the hemorrhage; second, the treatment or what can be done.

The cause of the hemorrhage may be suspected often from the information which the physician has about the patient, in that the family physician is familiar with the patient's past history, state of health, the diseases that may be present in the members of the family which could probably have a bearing on the patient's condition or symptoms. Of course, if the physician has never seen the patient before, then he is unfamiliar with the history and it may be necessary to go into the patient's past history, together with the family history. It is well to listen to the patient's explanation of the cause of the hemorrhage, or the explanation of the family, even though it may turn out to be a poor explanation or one that is entirely wrong. Though it may not be the correct explanation, at the same time there may be something in the history which has a bearing on the condition.

The stethoscope can be used to a limited extent, although it is not usually advisable to put the patient through a thorough physical examination of the chest, when he is hemorrhaging or for a few hours following the hemorrhage, as any unusual exertion may do more harm than the good that can be obtained from the examination. When there are rather marked pathological changes in the lung or lungs, sometimes following a large hemoptysis, a certain amount of information may be obtained by listening with the stethoscope over the chest, in that there will be definite signs of pathology present, as indicated from the abnormal physical findings as heard on auscultation, and sometimes fairly large bubbling or moist rales can be heard over an area of the chest. This to a certain extent will help one to determine if the bleeding is coming from the lungs; and, if so, which side. While not always true, in a good number of cases the sensation the patient gets from the bleeding helps to a fairly accurate degree to tell us from which side of the chest it is coming.

Following a hemorrhage, when the patient has recovered sufficiently to enable him to be moved, it is well to make an X-ray examination of the chest, when it is possible to do so, for this is often of great help to determine the cause of the condition and the extent of the disease, if present. X-ray films of the chest will not usually show the presence of blood in the lungs.

Examination of the sputum or material expectorated is of value in determining the cause of the condition, especially in that a study of the organisms present will help lead us to a correct diagnosis.

Now we will take up some of the common conditions that cause pulmonary hemorrhage and, lastly, mention, in a general way, the things that may be done for the relief or treatment of same.

Acute Respiratory Infections. Many patients expectorate blood in small amounts with infections of the respiratory system, such as acute colds, acute bronchial conditions, or influenza. If we are satisfied that no other condition is present, the expectoration of a small amount of blood is of no definite harm and does not usually need anything other than the routine treatment and quiet which is necessary for the condition as a temporary measure, until the patient has had sufficient time to recover.

Pneumonia. Blood spitting that occurs in pneumonia is often typical of the disease, and, even when early, the diagnosis of pneumonia has often been made before there is any hemoptysis. It might be well to say here that sometimes pleurisy with large effusions may be diagnosed as pneumonia. It is also true that tuberculous patients may have a

XUM

pneumonic condition secondary to their tuberculosis. With patients who are suffering from chronic pulmonary tuberculosis, and who have intercurrent influenza, it is very difficult at times to determine if they have a reactivation or flare-up of the tuberculous lesion, or if they have influenza. So, these things should be kept in mind as a possibility in cases of suspected or diagnosed pneumonia, when there has been blood spitting.

Pulmonary Tuberculosis. Of all diseases, it is probably the most frequent that causes pulmonary hemorrhage. Therefore, in hemoptysis, it should be borne in mind first, and should be kept in mind until the physician is satisfied that he has excluded tuberculosis and something else is the cause of the blood spitting.

Bronchitis. Acute or chronic, but what I wish to lay stress on is chronic bronchial affections, whether secondary to known causes, such as sinus infections, or not. We may also include in this bronchiectasis, which is chronic, either of a mild or a severe nature, and which has a tendency to progress. In many of these cases, especially in bronchiectasis, the first alarming symptom that causes the patient to seek attention is hemorrhage. As a general rule, a careful history and questioning will lead one to suspect the possibility of a chronic bronchial affection or a bronchiectasis. When the condition is advanced the symptoms and signs are fairly obvious that a bronchiectasis is present. It has to be differentiated from tuberculosis.

These patients may give a history of recurring attacks of cold or bronchitis, which may have started in childhood with diseases such as whooping cough or measles and gradually progressed or became worse over a period of years, or may have commenced in later life following pneumonia or influenza. A careful study of the history is of great help in determining these non-tuberculous conditions. Repeated sputum examinations are necessary at times to exclude tuberculosis, and physical and X-ray findings are of considerable value in some cases, especially if the condition is advanced, but may be of little or not of great value in early or mild cases. But if the complaint is of long standing and the physical and X-ray findings are slight, we are more likely to have a chronic non-tuberculous infection. Also, many of these cases show the most definite abnormal changes in the lower halves of the lungs, from both the physical and X-ray findings. Sometimes tuberculosis is basal in origin, but it is very difficult to diagnose it when so located, without a positive sputum. Lipiodol injection will help sometimes to bring out a bronchiectasis which cannot be determined otherwise. Many of these patients' general condition is very good for years, until they have reached the advanced condition where the severe cough and expectoration and profuse sputum, with odor, makes the diagnosis fairly easy.

Pulmonary Abscess. May occur in any portion of the lung. As a general rule, in the great majority of those we have seen, the condition has been in the middle or lower portion of the lung; on one or two occasions we have seen upper lobe abscesses. The history often is a great help in arriving at a diagnosis of this condition, in that there may have been some operative procedure, such as tonsillectomy or the extraction of teeth, which was followed within about two weeks' time with severe cough and profuse expectoration, with a very foul odor. These patients sometimes have rather severe and large hemorrhages. Repeated sputum examinations, with careful study of X-ray films and the history of the illness will often help in the correct diagnosis.

Chronic Heart Disease. Especially with mitral stenosis, pulmonary hemorrhage is not unusual in these cases. The chief reliance of diagnosis, of course, is on the history and symptoms, together with the physical findings of the heart condition; often the heart is enlarged. Recently we had a patient with a history of having had repeated hemorrhages previous to admission, and on two occasions while in the sanatorium he hemorrhaged; all indications point to the heart condition as being the cause of the hemorrhage.

Cancer (Malignancy) of the Lungs. With a complaint of hemoptysis and no past history to explain the condition, with negative physical and X-ray findings, in people of middle age or past, careful consideration should be given to the possibility of a malignancy of the lining of the bronchial tubes. Bronchoscopy may be of value in suspected malignancy of a bronchus. The condition may have developed to the extent that it can be shown on the X-ray film, and certain types of malignancy are easily recognized while others may cause some worry in order to arrive at a correct conclusion.

Foreign Bodies. The presence of a foreign body

sometimes will explain a hemorrhage. In some instances, it is known, or the history may be obtained of a suspected foreign body; in others, the patient is unaware of the foreign body being present in a bronchus. The following history is interesting from the standpoint of a foreign body being the cause of hemoptysis: A middle-aged patient was admitted to the Sanatorium for suspected pulmonary tuberculosis on account of repeated small hemoptyses. The general condition was good and there were no marked symptoms. While remaining quiet in bed she got along perfectly all right but, on being allowed to get up or bend over, she had a tendency to have small hemoptyses. After questioning her a number of times, it developed that she had fallen sometime previous to her admission to the Sanatorium, and broken a plate in her mouth and had found all the pieces but one. An X-ray examination of the chest showed a portion of the plate in the bronchial tube. Removal of this ended the hemoptyses.

Pneumonoconiosis. Some cases of pneumonoconiosis will expectorate blood but in our experience the majority of the patients who have pneumonoconiosis do not give a history of hemoptysis. It is true we have not seen a great many patients with the inhalation of dust of the type that is considered harmful. With the exception of a few cases of silicosis, most of the chests we have seen in which there was inhalation of foreign particles present, the condition was due to soft coal dust, which of itself did not affect the patient's health to any great extent, nor cause hemoptyses.

A few other things which we have not seen often but which may cause hemorrhage from the lungs and should be mentioned are gangrene of the lungs, pulmonary infarction, fungus infections, and aortic aneurysm.

In addition to the above-mentioned conditions, we see a few patients every year in which there is a history of one or more clear-cut hemorrhages which are usually followed by no symptoms, and from the examinations of the chest we are unable to make out anything abnormal. In these we are just unable to determine the cause, and they remain undiagnosed.

Treatment, or What Can Be Done. First, for streaked sputum, or a small hemorrhage of a dram or less, quiet, with rest in bed, and assurance to the patient, is often all that is necessary. Sometimes streaked sputum or a small hemoptysis may be the forerunner of a more alarming condition in the way of a large hemorrhage later on. In general, for a hemoptysis which amounts to more than a very small quantity of blood, the quiet, with rest in bed, is probably the most beneficial and most helpful thing that can be done. The matter of rest should vary from two to three days to longer periods, depending on what is the cause of the hemorrhage, the symptoms following it, and the seriousness of the condition.

The position in bed is not a matter of great importance, except the patient should usually be flat and quiet, or he may have his head and shoulders on one or two pillows if he is more comfortable in that position.

An ice-cap for a few hours over the chest does no harm and may help to an extent in allaying the patient's fear, although I do not know that it is of value in having any effect on stopping the hemorrhage.

Most patients who have bleeding from the lungs or air passages have a tendency to cough. If the cough is slight, there is no urgent necessity for any remedy for it. If the cough is moderate or severe, codeine, grains one-fourth to one, may be of value, either hypodermically or by mouth. The patient should be given help to control the cough if it is severe; at the same time, narcotics should not be given to a degree where the sense of cough is entirely depressed, for it is probably better for the patient to cough to a limited extent in order to expel such blood as may be in the lungs or air passages.

In the case of extreme nervousness, it might be well to use hypodermically a small dose of morphine, from one-sixteenth to one-eighth grain, but we prefer codeine to morphine unless there is definite indication for the use of something more powerful than codeine to help keep the patient reasonably quiet.

Calcium in some form, preferably calcium gluconate, can be used intravenously or intramuscularly for a few doses.

Some of the hemostatic preparations are often used; we have used thromboplastin subcutaneously for a number of years, yet I do not know that it has ever stopped a hemorrhage.

In suitable cases in bleeding from the lung, when it can be determined from which side, collapse

XUM

therapy may be used to considerable advantage, as it will, no doubt stop hemorrhaging in many cases. Especially is it of value in pulmonary tuberculosis, and artificial pneumothorax is the simplest and most convenient form of collapse therapy. The proper collapse of a bleeding lung will often stop hemorrhage. It may be used as a temporary measure or it may be continued as a curative measure, if the condition present indicates its continued used.

As to other drugs and remedies that have been used, such as nitro-glycerine, tincture veratrum, ergot, gelatin, atropine, probably they do no harm, but after a period of years we have not been able to satisfy ourselves that they are of definite benefit. For instance, a number of years ago our standing order for pulmonary hemorrhage was to break an amyl nitrite pearl for the patient to smell to lower his blood pressure; what effect it had on lowering the pulmonary blood pressure, I do not know. An ice-cap was placed on the chest. The blood pressure was taken every four hours; if the systolic pressure was above 100, the patient was given either nitro-glycerine, sodium nitrite or tincture veratrum, in order to keep the pressure below 100. At the same time, codeine or morphine was used to help allay the cough and keep the patient quiet. The patient was kept in bed, perfectly quiet, not allowed to turn or move, was fed for several days with cold foods, and a small dose of magnesium sulphate was given every morning. Calcium was given every four hours for two days.

We gradually got away from some of these things and, while the patient is still kept quiet in bed during and following hemoptysis, he is allowed to move to a certain extent shortly after the hemorrhage stops, so that he may be in a comfortable position with a view to lessening the cough and to give more quiet and rest. As mentioned above, we use codeine, if indicated, to help control the cough; if there is no cough following the hemorrhage, then no codeine is used. Thromboplastin and calcium are used in some cases. And the food for a day or so is light and not very hot. Collapse therapy may be used if it is possible to do so.

In recent years, with what we may call little treatment for pulmonary hemorrhage, the patients have gotten along just as well during and following hemorrhages as they did years ago with the many remedies we used. Frankly, outside of keeping the patient reasonably quiet, using some codeine if indicated, and collapse therapy when possible, I do not know that anything else we have used has had any great benefit or effect in stopping or preventing hemorrhaging. Sometimes I fear we used to do too much for the patient's own good, and I hope we do enough at the present time rather than too little, but in the long run most bleeding from the air passages stops of itself, and we have no measures to control it to any great extent. Only a small percentage of patients actually bleed to death from pulmonary hemorrhage, although the hemorrhage itself may be followed by complications which are serious, or may result from some condition that is serious.

PREMATURE SEPARATION OF THE PLACENTA—WITH A REVIEW OF ITS STATUS IN THE LAST TEN YEARS AT THE NORFOLK PROTESTANT HOSPITAL.*

RICHARD B. NICHOLLS, M. D.,
Norfolk, Va.

The various hemorrhages during the last trimester of pregnancy offer to the obstetrician one of the ripest fields for the reduction of maternal mortality. Hemorrhage *per se* causes 10 per cent of all maternal deaths, and, unfortunately, this figure has not been materially reduced during the past twenty years, despite the advent of transfusions. This figure would be increased to 28 per cent if all deaths due to abortions, accidents of labor, and ectopic pregnancies were included. But this paper will deal specifically with only one and probably the most dangerous and fatal of all hemorrhages threatening the life of the pregnant woman in the last trimester of pregnancy—that of premature separation of the placenta. A conservative estimate of the mortality for all cases is between 5 per cent and 10 per cent. Troupin, from the Boston City Hospital, in his series of eighty-

*Read before the Norfolk County Medical Society, January 27, 1936.

seven cases, from 1916 to 1931, gives a mortality rate of from 14 per cent to 16 per cent. Polak, in his review of the literature, found a mortality rate of between 2.6 per cent to 66 per cent.

Before I proceed to a more detailed discussion of this subject, I want to briefly review all the cases of this type which have occurred over a period of ten years, 1925 through 1935, at the Norfolk Protestant Hospital. In 4,551 obstetric deliveries, there were thirteen cases of premature separation of the placenta, an incidence of one to 350 labors, or 0.29 per cent. Many of the older hospital records were inadequate, but, as I could best ascertain, there were seven grave cases and six mild cases. There were two maternal deaths, both occurring in the grave type, giving a maternal mortality of 15.4 per cent. All of the mild type recovered. In both types, there was 100 per cent infant deaths. Of the mild type, all were delivered vaginally, while in the grave type, two were delivered vaginally, and five by Caesarean sections. All of the Caesarean sections were of the low flap type, and in two of these a hysterectomy was done. There were four nulliparae and nine multiparae. The grave type occurred in three of the four nulliparae and in four of the nine multiparae.

The two women who died bear additional consideration:

Case I. G. D., age 38, para 9, was toxic and at term. She was stricken at 11 A. M. on the day of admission to the hospital. She was admitted to the hospital at 1:30 P. M. and delivered at 3:00 P. M., after manual dilatation of the cervix. The patient died at 5:40 P. M. of a post-partum hemorrhage, even though the cervical lacerations had been sutured and the uterus and the vagina packed.

Case II. E. R., age unknown, nulliparus, at term. Had been in labor for twelve hours with a face presentation. Placental separation occurred during labor. A small transfusion was given before operation. The patient died thirty minutes after a low flap Caesarean section had been done. The hospital chart suggested the possibility of a pulmonary embolism (see chart).

The brief foregone analysis gives us a noticeable indication of its relation to Norfolk's obstetrics.

Premature separation of the placenta, ablatio placenta, abruptio placenta, are synonymous terms commonly used to denote a clinical entity which is one and the same condition, namely, the premature separation of a normally implanted placenta, which generally occurs during the last trimester of pregnancy or during labor. My chief interest in this paper will be an elaboration upon the treatment and management of this condition, but, before so proceeding, I must first review briefly a few of the preliminary cardinal points of importance, such as incidence, causes, pathology, and the diagnosis.

Incidence: The frequency of abruptio placenta varies considerably with the different authors. It is less frequent than placenta previa, and it occurs more frequently in multiparous, toxic patients. E. M. Davis and Wm. B. McGee, in 1931, reported one to every two hundred and forty-four deliveries. The partial type occurred in one to 357 deliveries, and the complete in one to 770 deliveries. I. A. Siegel, of Baltimore, in 1933, reported sixty-two cases in 3,000 labors, or one to forty-eight deliveries. A. S. Troupin, in 1933, reported one to 157 deliveries. J. O. Polak, in 1931, reported sixteen cases in 4,878 deliveries, or one in 305 labors. T. L. Montgomery, in 1934, reported one in 265 labors at Jefferson Hospital in Philadelphia. At the Protestant Hospital, 1925-1935, there were thirteen cases in 4,551 deliveries, with an incidence of one to 350 labors, or 0.29 per cent.

Etiology: The exact cause of abruptio placenta is not definitely known. The most common predisposing cause of abruptio placenta, as we all know, is toxemia of pregnancy. Pre-eclampsia and eclampsia are frequently complicated by this condition. McGlinn, of Philadelphia, suggests that a faulty embryological development of the anchoring villi is the underlying factor, so that from the very beginning the placenta is only loosely attached to the decidua basalis. Such a placenta, when subjected to the added stress of toxemia and uterine motility, would naturally be expected to separate from its uterine attachment. The occurrence of placental infarcts, along with toxemia, unquestionably play a part in the separation of the placenta, because the infarcted placenta is less firmly attached to the uterus than the non-infarcted one. Hofbauer has convincingly proven experimentally in animals that there is a toxic substance, histamine-like in character, taken from placental infarcts which will produce abruptio placenta in pregnant animals. Other causes of abruptio placenta will simply be mentioned:—torsion of the uterus, endometrial disease, violet muscular

XUM

GRAVE CASES

Name	Age	Para	Method of Delivery	Baby	Mother	Remarks
G. D.	38	9	Manual dilatation of cervix. High forceps.	Dead	Died	Hemorrhage 11 A. M. Hospitalized 1:30 P. M. Delivery 3 P. M. by manual dilatation of cervix. Uterus and vagina packed. Died 5:40 P. M. hemorrhage.
E. R.	?	1	Low-flap Caesarean section.....	Dead	Died	In labor 12 hours. Face presentation. Small transfusion pre-operative. Died 30 minutes later.
F.	28	1	Low-flap Beck Caesarean section.	Dead	Lived	Toxic. Caesarean done 12 hours after onset of abruptio placenta. Was very ill. Several transfusions.
M. W.	24	1	Low-flap Caesarean section.....	Dead	Lived	Toxic. Section done at 8 months, gestation 4 months after onset of toxemia.
S. M.	40	2	Low Forceps.....	Dead	Lived	Placenta separated at end of 1st stage en route delivery room.
M. S.	32	2	Monroe-Kerr low-flap section hysterectomy	Dead	Lived	At term. Operation 7 hours after onset Pain very slight. Bleeding excessive. Abdomen very tender.
L. U.	40	9	Monroe-Kerr low-flap section hysterectomy.	Dead	Lived	Pre-eclampsia. Operation 2 hours after onset. 1500 CC. Cit. blood after section.

MILD CASES

Name	Age	Para	Method of Delivery	Baby	Mother	Remarks
G. A.	38	5	Spontaneous.....	Died	Lived	Six months pregnancy. 4 hours labor. Large retro-placental clots.
B. J.	40	3	Breech Ext. A. C. H. Forceps...	Died	Lived	Onset 2 hours before delivery.
I. K.	30	3	Bag induction forceps.....	Dead	Lived	Onset 10 hours before delivery. Vagina packed to control bleeding, with no avail. Bag induction.
W. W.	30	4	Bag induction spontaneous.....	Dead	Lived	Lateral placenta previa. Treated with bag induction. Separation occurred 1 hour before delivery.
I. R.	29	3	Spontaneous.....	Dead	Lived	7 months gestation. Vagina packed 24 hours before delivery. Baby 1 pound.
L. M.	23	1	Bag induction.....	Dead	Lived	Monstrosity.

effort, and last, and of least importance, is direct violence.

Pathology: The types of premature separations may be listed as partial or complete, revealed or concealed, mild or grave. The mild type will simply be passed over at this time for a more detailed consideration of the pathology of the grave type, since the pathology of the mild type is one of lesser degree than that of the grave type. Naturally, the grave type, which is usually complete, and may be either revealed or concealed with regard to its bleeding, is the most dangerous of them all. The external bleeding, which is usually slight or absent, is out of proportion to the degree of shock and anemia. This is due to the retro-placental bleeding which forms a hematoma at the site of the detached placenta, and this hematoma is retained between the uterine wall and the products of conception. This hematoma, which gradually gets larger as bleeding continues, acts as a foreign body which, in turn, stimulates the uterine muscle to a firm tetanic contraction. Expulsion of the blood is limited by the

membranes, placenta, and the tightly engaged presenting part, which acts as a tampon. The usual course of events is that the blood extends between the membranes and placenta and the uterine wall, and appears externally. It is a rare thing for the bleeding to rupture into the amniotic cavity. The back pressure of the escaping blood, exerted against the firm uterine tonic contractions, causes an infiltration of the hemorrhage into the decidua basalis. Fairly rapidly, the blood infiltrates the uterine muscle until the pressure exerted by the uterus overcomes the existing blood pressure. By this time, the uterus grossly presents a bluish, purplish, mottled appearance. Grossly, there is edema of the tubes, ovaries, and broad ligaments, and, in some cases, this characteristic discoloration extends to the peritoneal lining of the pelvis. Occasionally, dark, free blood can be found in the peritoneal cavity, it having oozed through the muscular wall itself, or, more likely, through the patent tubes. The uterus itself becomes sponge-like, flabby, and over-stretched, and loses its contractile power. This is known as utero-placental apoplexy. Grossly, on cut surface, it is bluish or purple in color, edematous, and sponge-like to palpation.

Microscopically: One finds an abundance of red blood cells which have been forced between the individual muscle fibres of the myometrium. The muscular bundles are disassociated and there are varying degrees of loss of integrity and contractility. This hemorrhagic infiltration varies in degree, and may, in different cases, extend as far as the broad ligaments and pelvic peritoneum. A degenerating necrosis of the muscular bundles can be found interspersed among the more edematous sections. The blood vessels are greatly enlarged and their endothelial cell linings are hydropic. All of the cellular cytoplasm is rounded and vacuolated, indicating this hydropic degeneration. Intermingled with all the red blood cells and muscular bundles may be noted a definite increase of leukocytes—chiefly polymorphonuclears.

In consideration of the clinical picture, I want to divide the discussion into that of the mild type, and that of the grave type:

The *mild* type, or partial separation, may present little or no pain and the signs of hemorrhage may be slight or negligible, and since the mild or partial separation most frequently occurs during labor, it is often missed. A characteristic feature of partial separation is increased vaginal bleeding with a localized site of tenderness and pain on the uterus as labor progresses.

The *grave* type of complete abruptio placenta is the one which will be considered from this point on. It can occur at any time during the last trimester of pregnancy, although it is most frequent immediately before or at the onset of labor, and in patients who are toxic. The alert physician should be suspicious and anticipate such an accident in those patients who are toxic. The onset is usually sudden. The patient complains of a sudden tearing, bursting, abdominal pain, which is excrutiating and continuous. If the separation is gradual, then the pain may be at first dull, but it gradually increases in intensity as the separation completes itself and the retro-placental bleeding continues. The over-stretching of the uterine muscle causes the intense pain. This pain is further aggravated by the counter-pressure of the uterus on the blood in the uterine cavity, which is acting as a foreign body. About the same time or within a few minutes after the onset of the pain, there is vaginal bleeding. The bleeding, though, is usually slight or moderate. The danger at this point is that the bleeding is often concealed within the uterine cavity and the amount of external manifestation is not concomitant with the degree of shock or constitutional symptoms of hemorrhage. The obstetrician must always keep in mind that he can anticipate a greater loss of blood from the circulation than is visible externally in any type of abruptio placenta. The signs of hemorrhage are always progressive. In order to impress it upon you, let me reiterate that in severely grave cases in which utero-placental apoplexy occurs, the blood not only accumulates retro-placentally, but it is forced into and infiltrates the uterine musculature, passing very often to the serosa and laterally to the broad ligaments. The uterine muscle loses its contractility at this stage and bleeding continues more freely, which, unless interference is instituted, eventually results in the death of the patient, due to hemorrhage occurring within her own tissues. Obviously, the physician should not allow his patient to progress to this irretrievable stage.

Shock is more liable in the grave type of abruptio placenta, and, with the loss of blood and intense pain, the patient is likely to develop shock rapidly.

XUM

Uterine Tenderness: This is a symptom which bears emphasis and upon which I depend greatly in making a diagnosis. It is most frequently seen in the grave type. One author quotes 63 per cent incidence, but, in my own experience, tenderness has been even more outstanding. Uterine tenderness associated with a hard, board-like rigidity of the uterus, even though pain may be slight or absent, is sufficient to make the diagnosis. Tenderness is of the sort that even superficial palpation produces exquisite discomfort to the patient.

Just one word about the *board-like rigidity* of the uterus. In the grave type of abruptio placenta, which occurs before labor is well under way, the uterus is so tetanically contracted that there is no period of relaxation, no signs of labor pain with the contraction, and there is little or no dilatation or effacement of the cervix. Occasionally, though, some authors quote frequently, there are moderate rhythmic contractions of the uterus, so that labor progresses rapidly to completion within a short time of the separation. These cases, however, are most often found in partial separation or in cases where labor is under way. In the grave cases where there is no relaxation of the uterus, and the separation is complete, one is then sure to get a paralysis of the myometrium, a necrosis of the muscular bundles, further hemorrhage and death.

It is often helpful in *eliciting from the patient* a history of violent fetal movements shortly after the onset of the abdominal pain which ceased within a few minutes. This violent fetal activity is due to a failing effort on the part of the baby to breath, and it soon dies of intra-uterine suffocation.

Diagnosis: In the *mild* or partial type of abruptio placenta, the diagnosis is frequently missed until after the birth of the child, and it is then made following the expulsion of old clots of blood from behind the placenta. This is because the mild or partial type occurs chiefly during the course of labor, when the added bleeding, localized uterine tenderness, and localized uterine pain may be underestimated.

It is hardly necessary to emphasize the importance of early diagnosis in the *grave* type. A consideration of the history—a multipara (since more occur in parous women), atoxic patient (by far more occur in the late toxemias), and a woman not in labor or just beginning labor who is seized with a sudden, sharp, bursting, tearing abdominal pain, vaginal bleeding, board-like rigidity, uterine tenderness, and loss of fetal movement—should make one think at once of abruptio placenta.

Constitutional symptoms of bleeding appear rapidly. A gradual increase in the size of the uterus and a rounded contour appear as the concealed hemorrhage progresses. The two chief conditions to be differentiated are placenta previa and ruptured uterus. In placenta previa, there is bleeding, of course, and the constitutional symptoms of bleeding are in proportion to the amount of loss of blood. The patient has no pain and has not been in labor. Uterine tenderness is absent. In ruptured uterus, the patient has been in labor for some time. Labor ceases after the excruciating pain of the ruptured uterus subsides. In examining the abdomen, the uterus is found contracted down over the symphysis pubis. The fetus can be palpated free in the abdominal cavity. A sterile vaginal examination in all of these conditions will clinch the diagnosis.

Treatment: There are a great number of factors which influence the type of treatment of abruptio placenta, but, once the diagnosis has been made, the all-important factor is treatment. Let me stress the fact that this emergency is one of hemorrhage—a hemorrhage of the most deadly kind,—and it calls for immediate and deliberate action. The type of treatment and the method of delivery depend upon the needs of the individual case, but they all resolve to just two great needs:

1. Control of the hemorrhage.
2. Replace the lost blood.

Interrelated factors are to be considered, such as the stage of gestation, condition of the cervix, constitutional or systemic evidence of loss of blood, and parity of the mother.

The first step in the treatment of all types of abruptio placenta is to secure several donors, have them typed and cross-matched at once, so they may be available at a minute's notice.

In the mild or partial type, treatment can proceed along conservative lines, provided labor progresses rapidly enough and the constitutional signs of hemorrhage are not alarming. Since most of the mild cases occur during labor, the patient may be delivered vaginally. A transfusion of 500 c.c. or more of citrated blood should be given either during or immediately after delivery. Intravenous saline is the

next best alternative until blood can be obtained. Even in the mild type, after delivery, the obstetrician must always guard against post-partum hemorrhage. The fundus should be held by an assistant or a well-trained nurse for at least one hour after delivery to anticipate a secondary uterine relaxation. The slightest tendency to bleed after delivery should be the signal to pack the uterus. Should it be necessary for uterine packing, the procedure should be systematic, thorough, and complete. After the uterus has been packed, the vagina should also be thoroughly packed.

Treatment of the *grave* type of abruptio placenta requires more serious consideration. The inaccessibility of the source of bleeding makes it difficult to control. Procrastination and temporizing is to deliberately invite disaster. The baby's condition and outcome are incidental and negligible. Regard for the life of the mother is all that is important, and if ever an emergency occurred which required mature judgment and deliberate action, it is in this condition. There are three outstanding points in the treatment of the *grave* type which I want to stress and advocate:

1. Immediate and ample transfusions.
2. Early and deliberate Caesarean section.
3. Condemnation of forcible and rapid dilatation of the undilated cervix.

As soon as the patient has been seen and the diagnosis made, then a transfusion of 500 c.c. or more of citrated blood should be given to combat the shock. Other donors should be made available. As soon as the transfusion has been completed (or it may still be in progress), an immediate Caesarean section should be done. This is best accomplished under novocaine infiltration, augmented with ethylene or gas. Regardless of how soon after the complete separation has occurred, the obstetrician will invariably find the ravages of the concealed bleeding in process. At section, the uterus will be found to be bluish-purple in color, and frequently ecchymotic spots of clotted blood are present under the serosa. Already degeneration of the uterine musculature has begun. At this stage of the operation, the obstetrician must decide upon which course of treatment he must proceed.

1. Either to do a hysterectomy after the Caesarean section, or
2. Allow the uterus to remain.

This depends entirely upon the integrity of the musculature, which is best determined by the contractility of the uterus after removal of the fetus and placenta, and also upon the amount of bleeding from the uterine sinuses. Frequently the obstetrician is misled in his hopefulness to conserve the uterus, and he regretfully finds several hours after the Caesarean section has been done that the patient will have a post-partum hemorrhage, and may die because further surgery and loss of blood would not be consistent with life. To my mind,—and I heartily advocate it,—a hysterectomy should always be done when there is the slightest doubt of the ability of the uterus to remain contracted and control the bleeding. Sponge-like, boggy areas, without contractile power, are frequently found in uteri that seem to be responsive and contractile. I feel that such borderline cases are much safer if a hysterectomy is done. Hysterectomy offers the safest protection against further hemorrhage, and, though it foregoes any subsequent pregnancies, it is a life-assuring step. Primarily it is the woman's life which is in immediate danger.

Now, just a word about the type of Caesarean section. The low-flap Monroe-Kerr type offers the best results. This differs from the Beck low-flap in that the uterine incision is made transversely in the lower uterine segment, after the bladder has been reflected, whereas, the Beck incision is made longitudinally. By doing the Monroe-Kerr incision, less time is lost should it be necessary to terminate the operation by a hysterectomy, the bladder flap for peritonealization of the cervical stump is ready, and part of the amputation of the stump has already been completed.

During the operation and immediately afterward, the blood loss should be replaced. I agree with Dieckmann and Daily that small transfusions have no part in the treatment of obstetric hemorrhage. Large transfusions, repeated frequently, to replace the loss of blood as soon as possible are imperative. In one case of my own, we gave the patient 500 c.c. of citrated blood during the operation and 1000 c.c. of citrated blood within two hours after the closure of the incision. According to Dieckmann and Daily, at least enough should be returned to the circulation to bring the hemoglobin content up to approximately 10 gms. per 100 c.c. of blood—the normal being about 16 gms. These authors also recommend the citrate method of transfusion as being the ideal,

XUM

because speed is needed. Obviously, in hemorrhage, the blood volume is reduced, but the reduction of the blood volume is not the all-important feature. Other constituents which are so essential to the obstetric case are the replacement of hemoglobin, serum protein, and fibrinogen. All of these constituents will function just as well by replacement as though they had been formed by the patient herself. Large immediate and repeated transfusions are, therefore, advocated.

I only mention rapid and forcible dilatation of the cervix to condemn it. I agree with the late Dr. Williams, of Baltimore, that the uncertainty of the condition of the uterine muscle and the inaccessibility of the site of hemorrhage make Caesarean section the treatment of choice. Should the obstetrician be inadvertently misled in his judgment and rapid dilatation of the cervix be done when flabby, non-contractile uterine muscle has gone unobserved and packing has proved of little or no effect, if the patient does not die from hemorrhage, a hysterectomy should be attempted at once. The shock and hemorrhage should be heroically treated by a transfusion and saline preliminary to the operation.

The tendency to bleed from a non-contractile, post-partum uterus makes the third stage of labor the most serious stage of the entire labor. This is true in both abdominal and vaginal deliveries. Even a mild post-partum hemorrhage in an already exsanguinated patient may be the deciding factor. Oxytocics and uterine packing are often of little effect, but they should be employed relentlessly in those cases in which a hysterectomy has not been done. Of course, invasion of the uterus through the vagina is not without risks, since perforation is possible in a boggy, relaxed uterus, but it is the lesser of two evils.

In closing, let me say that I favor vaginal delivery of abruptio placenta only in those cases where labor is progressing rapidly and may be terminated easily. Occasionally, in multiparae who are in labor and whose cervices are almost completely dilated, where there is only a partial separation, or even a complete separation when delivery is imminent, forceps, or version, may be employed. I do not advocate Caesarean section for all types of premature separation of the placenta, but I do urge more prompt and expeditious use in the grave types. The grave type, especially those not having been in labor, and primiparae deserve an early Caesarean section. This method of delivery should be looked upon as the logical rather than the radical procedure.

REFERENCES

1. Norfolk Protestant Hospital Obstetric Records.
2. *American Journal of Obstetrics and Gynecology:*
   Dieckmann—Daily: Blood Transfusion in Obstetric Hemorrhage, July, 1935.
   McGlinn—Harer: The Treatment of Abruptio Placentae, August, 1935.
   Siegel: Abruptio Placentae, June, 1933.
   Polak: Accidental Hemorrhage—Ablatio Placentae, 1931.
   Montgomery: Premature Separation of the Placenta with Special Reference to the Etiology of Placental Lesions, 1934.
3. *Southern Medical Journal:* King: Ante-Partum Hemorrhage with Special Reference to Premature Separation of the Placenta as a Prominent Cause, December, 1932.
4. *Surgery, Gynecology, and Obstetrics:* Davis—McGee: Abruptio Placentae, December, 1931.
5. *New England Journal of Medicine:* Troupin: Premature Separation of the Normally Implanted Placenta—Review of 87 Cases, February, 1933.

605 Medical Arts Building.

UNUSUAL CASE OF MENINGOCOCCUS SEPTICEMIA.*

J. LAWN THOMPSON, A. M., M. D.,
Washington, D. C.

Septicemia from what ever cause is at best a most disconcerting condition, for it may be the result of the activity of any organism. The prognosis is grave, the treatment manifold, but not specific, and the organism causing septicemia is found in only about 25 per cent of all cases.

The clinical symptoms of sepsis may continue for weeks or even months with a fatal termination without the organism having been isolated or the portal of entry found. As in this case I am reporting, the

*Read before the Post-Graduate Annual Clinic of George Washington University Medical School, February 29, 1936.

blood culture showed the meningococcus only weeks after its entry into the blood, with no clinical symptoms of meningitis, but with marked clinical symptoms of sepsis. One is indeed lucky to have the cooperation of a laboratory associate as I did in the person of Dr. Oscar B. Hunter, who worked with me untiringly through all probable causes until at last we found a growth in the blood.

C. B. Conklin, in the December issue of the *Annals of the Medical Society of D. C.*, reports two cases of meningococcemia, such a condition as I am reporting, when he states that "there have been very few cases in which meningeal symptoms did not develop sooner or later." In looking through the literature I can confirm his statement. W. Dock reports a case of meningococcus septicemia which did not manifest meningeal symptoms for seven months, and Lenierre's case carried on for ten and one-half months before characteristic symptoms developed. H. Nankivill, in reviewing the literature on this subject, found the reports of a few cases in which the organism was found in the blood, though no clinical symptoms were manifested during life and no evidence of meningeal involvement post-mortem. E. B. Krumbharr, J. H. Cloud, C. L. Brown and a few others have reported meningococcus septicemia, but all of them have found the organism early. The neurological symptoms have at some time developed and all refer to a petechial rash. Blumer states that the rash may be petechial, maculo-papular or even bullous. In the case I am reporting the skin lesion was most disconcerting, eventuating in erythema multiforme and nodosum. Hyde, in his book on Diseases of the Skin, states that the lesions may be of various shapes, size and color. There were, at no time neurological symptoms and the meningococcus was not demonstrated until the eighth week and fifth culture. At no time were we able to demonstrate the portal of entry.

My swan song when lecturing to the students over a period of many years was, "if the laboratory findings don't check up on the clinical findings, then disregard the laboratory." I still assume that attitude, but I must confess that the laboratory was 100 per cent in this case.

S. M., 18 years of age, occupation a student, home state Utah, had been in Washington about one month. Previous history absolutely negative, as he had always enjoyed the best of health. He is six feet tall and weighs 170 pounds.

Present Illness: Was feeling well and attended school when, about four P. M., September 28th, he was taken suddenly ill with nausea and vomiting. Violent chill and temperature reached 104 degrees. Antipyretics were administered with ice cap to head. The next morning, September 29th, he was feeling very much better. His temperature was 100 degrees and his pulse was 50, good volume and perfect rhythm. A very thorough physical examination was made and was negative in every detail, other than a very few suspicious rose spots on his back which disappeared on pressure. He complained of a slight aching all over. With the suspicious rose spots and in view of the fact that a few months previously there had been a case of para-typhoid in the house, I thought it advisable to have his blood checked for typhoid, para-typhoid A and B, as well as a blood culture. The report came back immediately—negative for agglutinations, but the picture showed 19,500 white cells and 90 per cent polymorphonuclears. His tonsils had been removed and his throat and nose seemed normal. He called my attention to what looked like a mosquito bite on his right index finger, pressure on which caused considerable pain the length of his arm.

On September 30th his temperature was normal, his cerebration was above the average, and he was anxious to get out of bed. His pulse was 48. He did not know whether or not he had a habitually slow pulse; consequently, as I was interested in his bradycardia, I requested him to come to my office two days later, October 2nd, which he did. He said he felt fine other than another mosquito-looking bite on his ankle which caused him pain on pressure and he said he felt just a little achy. While in the office he had another very severe chill, lasting about an hour, with temperature rising to 104 degrees. I sent for Dr. Hunter who came at once as I thought maybe we were dealing with malaria, but the smear was negative and the leucocytes were still up. That evening I sent him to Garfield Hospital. The next morning his temperature was normal, his white cells had dropped to 12,000, and he again felt fine. Dr. Mallory saw him with me at the hospital but could find no reason for his attacks, his examination being negative. He stayed in the hospital for four days, improving all the time, so I let him go home. The

XUM

evening he arrived home he had another severe chill, with a mosquito-looking bite over his ensiform cartilage which was very painful to pressure. After each one of these attacks there would appear a very few scattered pinkish, irregular splotches about the size of the little finger nail—not more than six or seven on the arms and legs. These splotches would fade slightly on pressure. From then on his temperature was typically septic, ranging from nearly normal to 103° degrees, to at times 105°. Every third day seemed to be his worst, and while he had no definite chill until October 17th, he had chilly sensations and felt very sick each third day and these splotches would come and go.

On October 17th, two weeks after onset of illness, he had a severe chill, followed by most severe pains all over, so much so that he felt that all of his bones were being broken. The next day he felt better but had a massive shower of erythema multiforme and a few nodes. His arms and legs were literally peppered with the pinkish, irregular, macular rash similar to the scant ones that he had had all during his illness.

During this time he had been examined physically by several physicians. At no time was there any symptom that pointed to anything definite. His cerebration was above the average and on off days he felt very well.

Dr. Hunter and I discussed every possibility and the following laboratory examinations were made: No evidence of typhoid, para-typhoid A and B, malaria, undulant fever, typhus fever, tick fever, tularemia. Examinations and cultures of stools, cultures from nose and throat, frequent blood pictures, and urine examinations negative. The Wassermann was negative. No urethral discharge present. The spinal fluid was negative cytologically and as to culture. The pressure was normal. The laboratory findings were, therefore, at this time of no aid in making diagnosis.

Ophthalmological findings, transillumination, etc., were likewise negative.

On November 13th, left nostril was congested and a slight amount of mucopurulent discharge noted; his throat looked hyperemic, slightly sore, and left lingual tonsil was hyperemic and tender for the first time. We were trying all this time to locate the source of infection.

On November 12th Dr. L. F. Barker was called in consultation but could not arrive at any definite diagnosis.

After the appearance of the erythema large doses of sodium salicylate were given by rectum, starting with fifty grains and increasing to 150 grains. He seemed to be much better during this treatment.

On November 12th a fourth blood culture was taken, which then showed the meningococcus in pure culture. On November 21st the last and fifth culture showed the same findings, and was sent by Dr. Hunter to the National Institute of Health. The report came back positive for the Neisseria intracellularis (meningococcus).

The examination of the blood at the same time showed a rapidly progressing anemia. We were planning to transfuse and administer anti-meningococcus serum when his father insisted on taking him home, which he did December 12, 1935. He was still running a septic temperature though the excursions were not as marked, the range being from 98 to 100 degrees. His heart remained in good condition but persisted in its slow rate. He was unfortunate when he arrived home in being put in the hands of a "mysterious doctor" who had secret drops and certain diets, and who encouraged the patient to "get around," which he did. He went to a moving picture show where he collapsed, and his family, becoming alarmed, sent for their regular physician who found him suffering with marked dyspnea and a pulse rate of 144 but regular. I sent case report and laboratory findings to his physician, Dr. Hummer, in Salt Lake City, who then attended him. Patient was put back to bed and administered anti-meningococcus serum at my suggestion, first withdrawing 15 c.c. of spinal fluid and injecting the same amount of serum. The spinal fluid, both cytologically and cultural, was again negative. He had a slight reaction, but began to improve as his temperature became normal in a few days and he seemed perfectly well.

The portal of entry of meningitis has not as yet been definitely decided upon, though the upper air passages are most frequently blamed. Blood stream infections are disconcerting and the treatment of little value other than symptomatic and supportive. We feel that we were dealing with a meningococcus septicemia without classical skin symptoms or any evidence of neurological findings.

The erythema multiforme and nodosum was classi-

cal in character and we can find no case in the literature corresponding to the delayed skin lesions and recovery without any symptoms of meningitis. The bite looking lesions may have been the "pin point erythema nodosum" described by Hyde (Diseases of Skin).

The consultations in this case were justified not only by the complexity of the case, but also because of the fact that the young man was many miles away from home and the responsibility rested upon myself and his cousin who was a very young lady and who was importuned by kindly suggestions from friends who, in the final analysis, held her responsible.

The disconcerting facts in this case were:

1. The sudden onset in an unusually healthy and robust young individual.
2. The painful mosquito-looking bites which I later found corresponded to the pin point nodules in erythema nodosum, as described by Hyde in his book on Diseases of the Skin.
3. The shower of erythema multiforme two weeks after onset of illness.
4. The absence of any neurological symptoms.
5. His bradycardia.
6. The fact that he was very ill every third day, feeling very well at other times.

The last report on this patient—February 27th—indicated that he had recovered except for a faint cardiac murmur on exertion.

1735 Twentieth Street, Northwest.

REPORT OF THE PROPOSED PROGRAM OF STUDIES FOR NURSING SCHOOLS.*

LULU K. WOLF, R. N.,
Assistant Professor of Nursing, Medical College of Virginia,
Richmond, Va.

In order to present to you a comprehensible report of the proposed program of studies for nursing schools, now being formulated by the Central Curriculum Committee, it will be necessary to review briefly some of the factors pertinent to the initiation of this program. Built as it is, upon the findings of the Grading Committee and the studies made by the National League of Nursing Education, it represents an earnest effort on the part of nurse educators to improve the nursing care given to the public through the preparation of highly qualified, better-trained nurses, and the elimination of poorly prepared inadequate ones.

This kind of program is not peculiar to the nursing profession, for every other profession is today moving in the same healthy direction but it is a much more difficult one for some of us to visualize since it involves some definite changes in the organization and support of the nursing school. To clarify our thinking let us consider briefly the nursing school as it has evolved in the United States during the past fifty years.

*Read before the Tri-State Hospital Association at Old Point Comfort, Va., April 17, 1936.

THE FIRST CURRICULUM FOR SCHOOLS OF NURSING IN 1917

When the earliest American schools of nursing were organized in 1873 they were an integral part of the hospital and developed as service departments of the hospital, not educational institutions. The student nurse received an apprenticeship type of education at the bedside of the patient during long hours of work and service with little or no planned experience and teaching. Her training was the type which the particular hospital could offer her, in some instances quite meager, with the result that wide variations in the preparation of nurses occurred.

As training schools increased in number and more and more nurses were graduated, there was felt a need for setting some sort of standards which would ensure a more uniform type of training. Accordingly, in 1893 a group of superintendents of nurses met and organized a society to study the problems of the nursing schools. This society is known today as the National League of Nursing Education, an organization which has, since its inception, de-

XUM

voted its attention to the improvement of nursing schools and of nursing service.

In 1917 it published the first "Curriculum for Schools of Nursing" with a view to securing greater uniformity in the curricula of nursing schools and to help raise the general standards of teaching in these schools. This publication is familiar to most of us here and has been used extensively throughout this country (and abroad) as a guide for developing the educational program of the nurse. The curriculum is revised periodically. The last revision was in 1927.

THE NEED FOR THE PRESENT REVISION OF THE CURRICULUM

Since the last revision many things have happened which call for a change in the program of the nursing school, chief among which are the findings of the committee on the Grading of Nursing Schools. The factual data published in the committee's final reports revealed an urgent need for some definite changes in the education of the nurse. These changes are suggested in the revision of the curriculum now in preparation and some advances in standards are proposed. It is not expected that all schools will adopt these suggestions and recommendations in full, but if the experience of previous years is any guide, the new edition of the curriculum will be welcomed in nursing schools in all parts of the country and will be used by them as a tool in improving this work.

THE PROPOSED ADVANCES IN STANDARDS

The revision of the curriculum which is now under way is built upon the assumption that *the student nurse is studying nursing and preparing for that profession—she is not an employee of the hospital*. The assumption places education as the primary aim of the school and this should be interpreted as meaning education *for* service, and not as a question of education *or* service. In accepting education as the primary aim of the nursing school, we place the school on a professional rather than a service level and certain changes in standards must obviously result. The proposed standards for the present revision are as follows:

1. The admission requirement is two years of education beyond high school. (The revised curriculum is built on this level and specifies a two and one-half to three-year period for basic professional preparation with a forty-four-hour week for nursing students which is intended to include all class work.)

2. The student will pay for her maintenance, educational fees and other expenses just as in any other professional school. If during her second and third years in the hospital, her contribution to the nursing service is of value to the hospital, it is assumed that this will be considered in making some equitable arrangement between the school and hospital.

3. Since the whole program is on a definite educational basis, it will be necessary for the hospital to employ sufficient graduate nurses and other personnel to release the students from work that is not educationally profitable.

It will be seen from a study of these proposed standards that the organization of the school of nursing as here suggested will be somewhat changed from its old organization as a service unit of the hospital. The curriculum committee is now beginning a study on the cost of installing and operating the proposed curriculum. In the study several hospital administrators are participating as consultants, and members of representative nursing schools are sharing in the actual work. If the tentative plan is not found to be workable it will be modified before the report is issued. It is fairly clear that nursing education needs to have better financial support, but this does not mean that hospitals should be expected to contribute more than their share of the cost. An effort will be made to determine in a reasonable way, how such costs should be divided between the students, the public and the institutions conducting nursing schools.

THE PROPOSED PROGRAM OF STUDIES

In reconstructing the program found in the 1927 League Curriculum, the committee has made an effort to reduce the number of short courses by combining related materials into larger and more coherent groupings. The main changes of this nature are as follows:

1. Bacteriology—renamed "Microbiology" and expanded to include the study of disinfectants, formerly taught under elementary materia medica.

2. Pathology—expanded and renamed "Introduction to Medical Science," now including diagnostic, therapeutic and prophylactic measures.

3. Case Study Method—incorporated into Nursing the Sick.

4. Personal Hygiene and Physical Training—combined in the new course "Nursing as Health Conservation."

5. Principles and Practice of Nursing—remained Nursing the Sick. The more advanced procedures are incorporated into medical and surgical nursing.

6. Medical and Surgical Nursing, also Medical and Surgical Specialties, are combined into one integrated course.

7. Modern Social and Health Movements—integrated with several other courses including sociology.

8. Emergency Nursing and First Aid—included in Advanced Nursing.

9. Survey of Nursing Field and Related Professional Problems—renamed Professional Adjustments of the Graduate Nurse.

The present revision is about half finished. The general plan for the revision was outlined in the *American Journal of Nursing* last year (in the January to July issues) and special bulletins have been issued this year on individual courses. These bulletins contain tentative suggestions for courses and are being studied and criticized by about five hundred study groups all over the country. These groups are composed of over two thousand nurses, doctors, hospital administrators, dietitians, social workers and others who are giving very careful attention to the proposals and are sending back their reports to the curriculum committee. In this way it is hoped to find out what the people in the field think about the tentative proposals and to what extent they meet with support from the people who are likely to use them.

In conclusion, may I emphasize a few points concerning the proposed curriculum:

1. The proposed curriculum represents an earnest effort on the part of the Central Curriculum Committee and the National League of Nursing Education to solve most of the serious problems of the nursing situation today through the improvement of the nursing school and the education of the nurse.

2. The proposed program is suggestive only and is meant to be a guide and help for those schools interested in maintaining high standards and which are making a genuine effort to qualify as real professional schools.

3. The curriculum committee does not advocate uniform standards in all nursing schools, nor does it encourage all schools to adopt the suggested program of studies, as outlined in the bulletins. It aims rather at stimulating the thinking of nursing school faculties and helping them work out their own programs on a better basis.

In nursing there is a long road to travel. Long because the public must be educated to see that the nursing school should be an educational institution, just as any other school. Too long we have burdened the hospital with the cost of the nurse's education. This cost must be shared as it is in any other school. If the present proposed curriculum will help us to reach our goal, let us consider it carefully. It represents the best thinking in nursing education today, built on factual data secured by an exhaustive eight-year study. It deserves your consideration and help.

Public Health Statistics

I. C. RIGGIN, M. D.
State Health Commissioner of Virginia

The communicable disease reports received at the office of Dr. G. F. McGinnes, State Epidemiologist, for the month of May, 1936 show the following cases compared with the same month in 1935.

	1936	*1935*
Typhoid and Paratyphoid Fever	26	29
Diphtheria	56	60
Scarlet Fever	248	93
Measles	651	2,291
Meningitis	46	49
Poliomyelitis	2	7
Rocky Mountain Spotted Fever	1	5
Typhus Fever	1	0
Undulant Fever	4	5
Tularemia	1	4
Smallpox	1	0

CRIPPLED CHILDREN'S BUREAU

The Virginia State Department of Health announces the organization of a new bureau for crippled children with Dr. E. C. Harper as director. This department will be responsible for crippled children's service and will undertake a survey of the state to determine the number of persons in need of such treatment. It is estimated that there are 15,000 crippled children in Virginia and under the proposed plan each child will be followed from the

time he is discovered until he is physically rehabilitated, educated, trained in a vocation and placed in suitable employment.

For a number of years the members of the State Orthopedic Association have given their time in conducting orthopedic clinics throughout the state in cooperation with local civic and welfare organizations. The new bureau hopes to coordinate and supplement the activities of all these groups into a unified effort that will reach every crippled child in need of medical care.

Woman's Auxiliary to the Medical Society of Va.

President—MRS. FLETCHER J. WRIGHT, 49 S. Market St., Petersburg.

President-Elect—MRS. F. D. WILSON, 5352 Studley Ave., Norfolk.

Corresponding Secretary—MRS. MEADE EDMUNDS, Walnut Hill, Petersburg.

Recording Secretary—MRS. HAROLD W. POTTER, 70 33rd St., Newport News.

Treasurer—MRS. REUBEN F. SIMMS, 2502 Hawthorne Ave., Richmond.

Chairman, Press and Publicity—MRS. JAMES B. STONE, 15 Maxwell Road, Richmond.

Report of the Kansas City Meeting.

Attending the Kansas City Convention had not entered my mind at all, until a few days before, when I was called to Richmond to meet some of our directors of the Virginia Auxiliary, who were much concerned, as was I, over the fact that our appointed delegates could not go nor could we find one single representative from Virginia who could serve as our delegate. Because of this, it was thought, by our directors, imperative that I go, and so a few days later, I found myself on the train bound for Kansas City.

The scenery from the train window included mountains—some majestic with gorgeous scenic surroundings, others rugged and blackened by coal chutes; the busy life of several large cities; the quiet of sleepy little towns; oil wells busily pumping their "black, liquid gold"; great stretches of wheat fields as far as the eye could reach; and then four hours of darkness again, until we reached Kansas City at midnight.

When the Virginia "convention widow" (who by the way was not the only one attending whose husband could not go, for this was true of *many* there) entered the dining room for breakfast the next morning, she was surprised by a cheering and most cordial greeting from the National President, who, having only seen her the one time at our last State Convention in Norfolk, was able to call her by name and be the first to give a personal greeting. From then on things were happening every minute of the day and far into the nights, so I can give only a very brief resumé of the splendid things of this, the most wonderful and by far the best convention that the A. M. A. Auxiliary has ever had, as was decided by those who have attended many. The registration on Thursday morning had reached 1,487, and still more were arriving.

Monday, May 11th, was taken up entirely by the board meeting, with a very lovely luncheon given at the Woman's Club by Mrs. George Hoxie and Mrs. A. B. McGlothlan, two past presidents, for the board members. A very elaborate banquet was held at the Kansas City Country Club on Monday evening, with Mrs. Herbert Mantz, general chairman, presiding. The program during the banquet included violin numbers by a local artist, songs by the three lovely daughters of Dr. Samuel Roberts, and solo dancing by the daughter of another local doctor. The convention proper opened on Tuesday morning, May 12th, and this very busy day got a good start with the "Southern breakfast," when Mrs. Oliver Hill, president of the S. M. A. Auxiliary, presided.

By the time of the formal opening at nine o'clock, the board members felt that they were all fairly well acquainted, and we new ones, that we had met some most worth-while and charming new friends as well as co-workers.

After the opening premilinaries, the "In Memoriam" and the roll call of the states was a most impressive, though sad service. Virginia had only one name on this list, and while standing with saddened heart to hear the name of our Mrs. Joseph Buxton called, when the white rose was placed in the vase in her memory, your delegate realized too, how blessed had been our lot, when hearing the *many* names called from other states.

Every Virginian, whether able to attend the convention, or not, appreciates the honor given the

memory of our Dr. Leigh, by having the last page of the National Convention Program given over entirely to a beautiful "In Memoriam," to one of our much loved founders. Realizing that this will mean much more to our readers than will the convention news, I am giving you it.

IN MEMORIAM

DOCTOR SOUTHGATE LEIGH

The Woman's Auxiliary to the American Medical Association records the passing of one of its most earnest and zealous friends—Dr. Southgate Leigh. His sudden death has brought sorrow to the hearts of a multitude of friends. We gratefully recognize that his wise counsel and skillful leadership have reflected high honor upon our organization and have done much to establish its future work. His memory is a worthy inspiration for all time. The best expression of our feelings is found in the words of Kipling's "Dedication," where it was said that

> He scarce had need to doff his pride or
> slough the dross of earth—
> E'en as he trod that day to God, so
> walked he from his birth
> In simpleness and gentleness and
> honour and clean mirth.

The reports from the officers and chairmen of Standing Committees given throughout the day were most interesting and instructive and left the Virginia President longing to call together all of our State Chairmen at once that some of this information and inspiration might be passed on to them immediately.

Dr. W. W. Bauer, Director of Health and Public Instruction, A. M. A., was our luncheon speaker, and his every word fell on eager ears. Dr. Bauer places credit of the splendid success of the A. M. A. radio programs to the Auxiliary. These were not going well, he stated, until the help of the Auxiliary was enlisted, and then when 5,000 letters came in from one single program and again 800 letters enclosing 800 dimes for the literature of the "Maternal Hygiene" broadcast, the success of these radio programs was fully assured, and they will go on the air again with a new series next fall. Dr. Bauer also stated that 10 per cent of the subscriptions to *Hygeia* were secured by Auxiliary members and spoke at length on the splendid service rendered through the pages of *Hygeia* to the public in general, and to the medical profession in particular, since it is the doctors' best weapon against quacks, and the best means by which the medical profession can be interpreted to the public.

I hope you have read in the *Journal of the A. M. A.*, of the opening meeting on Tuesday evening for space here does not permit me to tell you of it.

On Wednesday, May 13th, came the State reports and the installation and election of officers. Virginia was again honored by having another president elected to the National Board of Directors. The entire afternoon of this day was spent by your representative in several long conferences and several meetings of the Committee on Resolutions, so the tea and drive had to be sacrificed for things more important.

There were teas and drives on each afternoon of the convention, when the local doctors' homes were opened to the visitors and they were given beautiful entertainment in a most cordial way. I am sure there could not be a more hospitable city, or more efficient and willing workers on every local committee, to be found anywhere for they were on duty from eight o'clock each morning until midnight every night.

Being a music lover, to me, one of the most refreshing things of the convention was the splendid music interspersed through each business and social meeting. The music for each day was under the direction of Mrs. Lewis Hess, herself a lovely contralto, who saw that each musical number given was by the best artists (and most of them from doctors' families) and of the highest type. Because of its unusualness, perhaps the whistling solo by the wife of Dr. Emsley Johnson, a professional musician, was most enjoyed by the large majority, for she was an artist beautiful to look at and delightful to hear.

Our souls and eyes too were feasted on Wednesday evening when we were given a "Gallery Walk" in the Nelson Art Gallery, one of the most costly and beautiful buildings in the United States, with a collection of art exhibits which cannot be surpassed in this country.

This closed the convention proper, for Thursday, May 14th, was taken up with the post convention board meeting, which perhaps was the most important of all, since plans for the work that is to be were discussed at this time.

Only social functions and golf tours remained, so your representative left just after the final board meeting, very tired in body and weary in mind but

XUM

much refreshed with new zeal and inspiration for this great work that is being done by our wonderful organization and wishing with all her heart that every member of the Virginia Auxiliary could not only attend our State meeting in Staunton next October, but could also go to Atlantic City for our next National convention.

ANNE S. WRIGHT, *President,*
(MRS. FLETCHER J. WRIGHT)
Woman's Auxiliary to the Medical Society of Virginia.

Truth About Medicine

In addition to the articles previously enumerated the following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:

National Drug Co.

Refined Tetanus Toxoid (Alum Precipitated).

Bilhuber-Knoll Corporation

Hypodermic Tablets of Metrazol 1½ grains.

Parke, Davis & Co.

Compressed Tablets Sal-Ethyl Carbonate with Phenacetin.

New and Nonofficial Remedies

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Metycaine Ophthalmic Ointment, 4 per cent.—Metycaine (New and Nonofficial Remedies, 1935, p. 56), 4 per cent, in a base consisting of liquid petrolatum and wool fat, with small amounts of paraffin, white petrolatum and ceresin. Eli Lilly & Co., Indianapolis, Ind.

Antipneumococcic Serum-Felton—Type I (Refined and Concentrated).—Prepared by immunizing horses with intravenous injections of virulent and avirulent pneumococci and subcutaneous injections of the supernatant broth culture mediums, in which the bacteria had been grown. The serum is concentrated by a method similar to that used for antitoxins. Marketed in packages containing 10,000 and 20,000 units of Type I pneumococcus antibodies. The National Drug Co., Philadelphia, Pa.

Antipneumococci Serum, Types I and II, Refined and Concentrated.—An antipneumococcic serum prepared by immunizing horses with intravenous injections of avirulent and virulent pneumococcus antibodies of Types I and II. It is marketed in packages of one syringe containing 10,000 units each of pneumococcus antibodies of Types I and II; in packages of one syringe containing 20,000 units of Types I and II, and in packages of one ampule containing 20,000 units of Types I and II. The National Drug Co., Philadelphia, Pa.

Tablets Amytal, ¼ Grain.—Each tablet contains amytal (New and Nonofficial Remedies, 1935, p. 94), ¼ grain. Eli Lilly & Co., Indianapolis, Ind.

Kapseals Ortal Sodium with Phenacetin.—Each kapseal (hermetically sealed capsule) contains ortal sodium (New and Nonfficial Remedies, 1935, p. 100), 1½ grains (0.1 Gm.) and acetophenetidin (phenacetin) 3 grains (0.2 Gm.). Parke, Davis & Co., Detroit, Mich.

Refined Tetanus Toxiod (Alum Precipitated).—A tetanus toxiod alum precipitated, marketed in packages of two 1 c.c. vials (one immunization treatment); and in packages of one 10 c.c. vial (five immunization treatments). The National Drug Co., Philadelphia, Pa. (*J. A. M. A.*, May 16, 1936, p. 1735.)

Propaganda for Reform

John S. Coulter, in a recent review on medical diathermy (*The Journal A. M. A.*, January 18, p. 209), says: "In the management of pneumonia, medical diathermy does seem to be of definite benefit in reducing the severity of the thoracic pain. It is not an accepted specific treatment in lobar pneumonia." While oxygen is being administered diathermy should not be employed, because ignition of the bedclothes may occur from small sparks in the presence of oxygen-enriched air. (*J. A. M. A.*, March 7, 1936, p. 872.)

The New Ergot Alkaloid "Ergonovine."—The Council on Pharmacy and Chemistry reports that during the past year, communications from four laboratories have been published reporting the isolation of a new oxytocic alkaloid from ergot. Until recently there has been doubt as to whether or not the principles reported by these laboratories were identical (termed "Ergotocin" by Kharasch, "Ergometrine" by Dudley and Moir, "Ergobasine" by Stoll, and "Ergostetrine" by Thompson). In a jointed signed statement (*Science*, February 28th) these investigators say there is "no doubt that the alkaloid obtained in the four different laboratories was the same substance. . . ." Because it seemed impossible to establish undisputed priority, and because of possible conflict of the other names with the policy of the Council governing nomenclature, it was necessary that a suitable nonproprietary name which is not therapeutically suggestive be adopted for the new alkaloid. Not one of the several names proposed by the discovers complies with the Council's requirements. The Council therefore determined to adopt the new nonproprietary name "Ergonovine" (ergo-nov-ine). (*J. A. M. A.*, March 21, 1936, p. 1008.)

Book Announcements

Medical Papers. Dedicated to Henry Asbury Christian. Physician and Teacher. From his present and past associates and house officers at the Peter Bent Brigham Hospital, Boston, Mass. In Honor of His Sixtieth Birthday, February 17, 1936. Waverly Press, Inc. Baltimore, Md. 1936. Octavo of xx-1000 pages. Illustrated.

Henry Asbury Christian has been the recipient of more honors than befall the lot of many men.

Recently, on the occasion of the celebration of his sixtieth anniversary, a very signal token of the gratitude and esteem of those who know and love him best, was dedicated. The Christian *Festschrift,* edited by Dr. Robert T. Monroe under the title, Medical Papers Dedicated to Henry Asbury Christian, Physician and Teacher, is a collection of scientific articles from the pens of his present and past associates and house officers at the Peter Bent Brigham Hospital.

In order that one may better understand and appreciate the monument to a man, it is necessary that one know something of the individual to whom it is erected.

Dr. Christian was born in Lynchburg, Va., February 17, 1876. He came of a long line of distinguished Virginians, several of whom served with honor and distinction in both the Continental and Confederate Armies.

His preparatory education was gotten in the public schools of Lynchburg. At the age of nineteen he graduated from Randolph-Macon College, with both A. B. and A. M. degrees. It was while attending the Ashland Institution his interest in science became manifest.

Christian received his M. D. degree from Johns Hopkins University in 1900. Among his teachers there were Osler, Welch, Barker, Mall and Halsted. As an undergraduate he made his first contribution to medical literature.

Then followed five years of intensive study in pathology under Mallory and Councilman in Boston, and Grawitz at Grifswald, but this was only a means toward the coveted end. Christian always intended to be a clinician; now the groundwork was completed.

Christian's career as an internist began when he became assistant to Dr. Reginald H. Fitz, then Hersey Professor of the Theory and Practice of Physic at Harvard, in 1905. Within a very short time he impressed those with whom he came in contact, including President Eliot, with his potential capabilities. After three short years in practice, he was offered the Deanship of the Harvard Medical School. This honor he at first declined, but later accepted with the realization that he was at the same time being invited to become Hersey Professor of the Theory and Practice of Physic. Thus, in 1908, at the age of 32, he became "The Boy Dean" as well as a full professor in one of our greatest medical schools.

In 1911 Professor Christian was invited to help organize and become Physician-in-Chief of the proposed new Peter Bent Brigham Hospital. Just how thoroughly and masterfully he filled these posts needs no recounting; it is medical tradition. The fruition of his dream to become friend, guide and teacher of worthy and capable students of medicine became a reality. During his stewardship as the head of one of America's greatest teaching hospitals, he had made many innovations in medical instruction that have stood the test of time.

There have been many other honors bestowed upon Dr. Christian, and numerous have been his contributions to medicine. I only wish that time and space permitted the enumeration of them all. The foregoing affords but a kaleidoscopic vision of the accomplishments of this great Virginian to whom a very remarkable volume of medical papers has been so appropriately dedicated.

It is very fitting that the "Introduction" to "Medical Papers" should be written by one of the Brigham's first House Officers. Dr. I. Chandler Walker, among others, spent part of a year in Europe with Dr. Christian studying new methods and formulating new ideas for the new hospital. He has known, loved and respected his Chief throughout the years they have been acquainted. Nor is it any the less appropriate that Dr. Warren T. Vaughan's "An Appreciation" should close the volume. Vaughan served as House Officer at the Brigham preceding the World War, and is one of "The Professor's" greatest and most ardent admirers. Interesting and delightful sidelights into Dr. Christian's character are portrayed by these two men.

Interspersed between "Introduction" and "An Appreciation" there are one hundred and one articles dealing with every phase of internal medicine. They take up nine hundred and sixty pages of the volume. Most of them are short, and therefore an added delight to the man they honor, for he above all things abhors procrastination and long-windedness, and delights in straightforward simply presented data.

It is not within the province of this review to signal out any of the very informative articles, contained within the *Festschrift,* for special discussion.

XUM

A sufficient variety of subject matter is presented to make this volume interesting for the undergraduate. On the other hand, comprehensive and authoritative presentation of the various topics, together with careful editing, make it a volume of inestimable value for the internist. As one reviewer has put it: "It might be called The Medicine of the Future."

W. RANDOLPH GRAHAM, M. D.

Books Available to Doctors.

Recent acquisitions to the Library of the Medical College of Virginia which may be had by Virginia doctors upon usual free library conditions are:

A. M. A.—Glandular Physiology.

Agricultural Research Council—Observations by the Tuberculosis Committee on the Experiment with Spahlinger Vaccine in Northern Ireland.

Bayliss, W. M.—Principles of General Physiology. New ed.

Beer, E.—Tumors of the Urinary Bladder.

Boyd, Wm.—The Pathology of Internal Diseases. 2nd ed.

Briquet, John—International rules of botanical nomenclature, adopted by the International Botanical Congresses of Vienna, 1905, and Brussels, 1910.

Bumke & Foerster—Handbuch der neurologie. Erster band.

Cardenal, L.—Diccionario terminologico de ciencias medicas.

Childs, M. W.—Sweden, the middle way.

Christopher, F.—Textbook of Surgery by American authors.

Dublin & Lotka—Length of Life.

Emerson, C. P.—The Nervous Patient.

First report on Viscosity and Plasticity. Amsterdam, 1935.

Gunewardene, H. O.—Heart Disease in the Tropics.

Harris, L. J.—Vitamins in Theory and Practice.

Havens, L. C.—The Bacteriology of Typhoid, Salmonella, and Dysentery Infections and Carrier States.

Henry, G. W.—Essentials of Psychopathology.

Katzenelbogen, S.—Cerebrospinal Fluid and Its Relation to Blood, Physiology and Pathology.

Kovacs, R.—Electrotherapy and Light Therapy.

de Kruif, P.—Why Keep Them Alive?

Lamb, F. W.—Introduction to Human Experimental Physiology.

Lamb, R.—American Chamber of Horrors.

Landsteiner, K.—The Specificity of Serological Reactions.

Levine, V. E.—Reprints of the Vitamins.

Lindeman, E. C.—Wealth and Culture.

Lorimer & Osborne—Dynamics of Population.

Mitchiner, P. H.—The Modern Treatment of Burns and Scalds.

Moore, E.—Heredity: Mainly Human.

The Next Five Years: An Essay in Political Agreement.

Parsons, T. R.—Fundamentals of Biochemistry.

Petersen, H.—Histologie und mikroskopische anatomie

Portfolios A and B—Portraits of Distinguished Chemists.

The Psychology of Getting Grades. (Anonymous.)

Roberts, T. S.—Bird Portraits in Color.

Sante, L. R.—Manual of Radiological Technique.

Seifriz, Wm.—Protoplasm.

Sinclair, U.—Depression Island.

Webb, S. and B.—Soviet Communism: a new civilization?

Weeks, M. E.—The Discovery of the Elements.

Wertham, F. & F.—The Brain as an Organ.

Wetmore, H. A.—Union List of Journals, Proceedings, Annuals and Other Serials Compiled from the Holdings of Forty nine Chemical Libraries.

Wibaut, F. M.—A World Production Order.

Wiener, A. S.—Blood Groups and Blood Transfusions.

Synopsis of Clinical Laboratory Methods. By W. E. BRAY, B. A., M. D., Professor of Clinical Pathology, University of Virginia; Director of Clinical Laboratories, University of Virginia Hospital. St. Louis. The C. V. Mosby Company. 1936. 12mo of 324 pages. Thirty-two text illustrations. Eleven color plates. Cloth. Price, $3.75.

In this conveniently sized book, the author has given a comprehensive survey of all the important methods used in hospital laboratories. The usual chapters on hematology, urinalysis, sputum examinations, etc., are supplemented by more recent examinations such as the Aschheim Zondek test and the rapid methods of typing pneumococci in sputum, all of which are clearly illustrated. Other chapters cover briefly but adequately examinations that are employed less frequently by the hospital laboratory, such as water and milk examinations, detection of poisons, technique of surgical pathology, etc.

This book has, it seems to me, a decided advantage over most of the smaller laboratory manuals that have appeared, in that it gives the interpretation of tests as well as their technique. Naturally, because of its size, it cannot go into such detail as do the textbooks on laboratory diagnosis, but it is felt that the book will be of great value to anyone associated with the laboratory.

JAMES P. BAKER, JR.

Examination of the Patient and Symptomatic Diagnosis. By JOHN WATTS MURRAY, M. D. Second Edition. St. Louis. The C. V. Mosby Company. 1936. Octavo of 1216 pages. With two hundred and seventy-four illustrations. Cloth. Price, $10.00.

The author has presented in this work an encyclopedic summary of the more common signs and symptoms of diseases. The first 450 pages are de-

voted to history taking and the remainder of the 1,216 pages are given over to the examination of the patient. There are 274 photographs and drawings.

The importance of a painstaking and thorough history cannot be over-emphasized but it is questionable whether the extent to which the author goes in the various ramifications outlined by him really aid the average practitioner. My experience as a teacher of medical students has convinced me that they are prone to lose themselves in the maze of irrelevant material gathered by following a too complicated questionnaire. The danger lies in merely tabulating of symptoms without developing the basic quality of analysis. A rather considerable space in this section is given to such useless information as a list of diseases commonly found in males, females, infancy, middle age, etc.

In the section *"Examination of the Patient,"* the author has arranged in a most elaborate manner questions and answers relating to the various systems. He has set forth to a remarkable degree an analytical discussion of the more common physical findings in a routine examination. Many of the statements, however, are necessarily incomplete and definitely misleading. It is unfortunate that so much material of value to the practitioner or medical student is buried in superfluous details and useless repetitions. W. H. HIGGINS, M. D.

Interpretation of Laboratory Findings. By RAYMOND H. GOODALE, M. D., Pathologist, City Hospital, Worcester, Mass.; Visiting Pathologist, Belmont and Fairlawn Hospitals, Worcester, Mass.; etc. Philadelphia. F. A. Davis Company. 1936. Octavo of ix-170 pages. Cloth. Price, $2.25 net.

There is really no justification for this book. Nothing original is offered. The normal values of constituents in blood, urine, feces, and spinal fluid are obtainable from any ordinary manual of laboratory procedure.

In Part II the discussion of diseases with associated laboratory findings is almost childish. As an example, in the discussion on diabetic coma the statements are made that the patient is in acidosis with urine containing large amounts of sugar, acetone and diacetic acid. If a physician is so ill-informed that he does not possess this knowledge, it is clearly indicative that he does not need a simple volume such as the one under reveiw, but rather extensive undergraduate training.

The chapter on intestinal parasites names the parasites, tells how to find them and states a portion of their life cycle.

The last chapter is devoted to preparing and collecting laboratory specimens.

Too brief in discussion of procedures and too elementary in its interpretation even for the busy physician, the reviewer reiterates that there is really no justification for this book.

N. BLOOM, M. D.

Index of Differential Diagnosis. By Various Writers; Edited by HERBERT FRENCH, C. V. O., C. B. E., M. A., M. D., Oxon., F. R. C. P., Lond. Consulting Physician to Guy's Hospital, London. William Wood and Company, Baltimore. Fifth Edition, 1936. Illustrated. Octavo of xi-1145 pages. Cloth. Price, $16.00.

This single volume of 1145 pages is a veritable mine of information, well arranged, adequately expressed and up-to-date in this fifth edition. First published in 1912, this work has evidently served a useful purpose as evidenced by the fact that well over fifty thousand copies have been reached.

This book is an index of symptoms arranged in alphabetical order and attempts to include medicine, surgery, gynecology, ophthalmology, dermatology and neurology. A particular feature is a full and accurate index of over 200 pages at the end of the volume. As the editor states: "Whilst the body of the book thus deals with symptoms, the general index at the end gathers these together under the headings of the various diseases in which they occur . . . for while each symptom is considered but once, each disease is likely to come up for discussion under the heading of each of its more important symptoms."

This excellent book should be of particular help as a ready reference volume to the busy general practitioner. In reviewing this work one is impressed with the adequate, modern and logical presentation of symptoms and signs. The typographical form is pleasing and illustrations are freely used.

DOUGLAS VANDERHOOF, M. D.

Cardiovascular Disease. A New Aspect of Cause and Treatment. By JOSEPH H. SCHRUP, M. D. Dubuque, Iowa. Pamphlet of 20 pages. Price, 12 cents.

The reviewer can see no justification for the hypothetical concepts expressed in this reprint nor does he feel that any of the conclusions drawn by the author are either sane or substantiated by facts.

WILLIAM B. PORTER, M. D.

XUM

Virginia Medical Monthly

Founded by LANDON B. EDWARDS, M. D., April, 1874
Owned by MEDICAL SOCIETY OF VIRGINIA since November, 1919
WYNDHAM B. BLANTON, M. D., *Editor*
AGNES V. EDWARDS, Richmond, *Business Manager*

PUBLICATION COMMITTEE
WYNDHAM B. BLANTON, M. D., Richmond, *Chairman*
H. B. MUHOLLAND, M. D., University — H. A. TABB, M. D., Gloucester

All correspondence regarding editorial matters, articles, advertisements, subscription rates, etc., should be addressed to the Monthly, 1200 East Clay Street, Richmond, Va.

This journal is not responsible for the opinions and statements of its contributors.

All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

Subscription Price: $2.00 per annum in advance. Single Copies 25c.

VOLUME 63 JULY, 1936 No. 4

Editorial

Our First Internist.

Thirty years ago a young Hopkins graduate came to Virginia with the intention of confining his practice to internal medicine. He was the first in Virginia thus to limit his medical work. The young Lydgate had sat under William Osler who more than anyone else in America dignified and set apart this important branch of medicine, and probably to Osler's influence he owed his resolution.

Thirty years ago medicine was rapidly expanding from the old type of practice which knew only physicians and surgeons into what even at that time threatened to be a bewildering maze of specialties. It was a necessary development, but one freighted with dangers to both profession and public. Into this situation the internist was thrust as a necessary safeguard, for internal medicine is not a specialty. According to the Oslerian conception "though it embraces at least half a dozen, its cultivators cannot be called specialists. . . . The manifestations of almost any one of the important diseases in the course of a few years will 'box the compass' of the specialties." Llewellys Barker who inherited much of the Osler tradition still stresses the importance of viewing the internist as an integrator not only of his own work but of that of the narrower specialties. His business is the correlation of all clinical and laboratory findings. He is concerned with both the soma and the psyche and is prepared to deal with the "psychophysical unit as a whole." In so doing he more than anyone else is best prepared to evaluate what Goldscheider has called the "autoplastic disease picture."

Thirty years have passed since young Douglas VanderHoof first came to Virginia and declared himself an internist in Osler's sense of the word. Those years, begun in the exploration of a new and untried field, have been years of service and of distinction. As Professor of Medicine in the Medical College of Virginia, as an esteemed member of the Executive Committee of its Board of Trustees, as a member of the Association of American Physicians—the highest honor that can come to a physician,—and as President of the Richmond Community Fund, he has added lustre to the good name of physician in the State of Virginia.

Thirty years of practice as an internist have passed and Dr. VanderHoof now declares his intention of retiring from the active practice of medicine. He is still a young man in spirit and body, and he can only have arrived at this determination because, having reached the pinnacle of professional success, he has no further ambition to satisfy.

The medical profession of Virginia on learning of the resolution of one of its most distinguished members to retire from practice will not only be voicing its regret but will be asking if there are

ot ways in which the splendid gifts of Dr. VanderHoof may be available still for the advancement of medicine—a cause to which he has already contributed so much. We feel that Dr. VanderHoof has retired from his chosen field in order to be of greater service to medicine as a whole. Untrammelled by private practice, his charm, his unusual talent for organization, his extensive background of medical experience, we hope will be used on a far wider field of operations. We believe that Dr. VanderHoof has retired not from, but for, service.

Department of Clinical and Medical Education of the Medical Society of Virginia

Drs. J. C. Flippin and E. Lee Sutton, who compose the special committee of the Department appointed to select post-graduate instructors now available to the State of Virginia, announce the appointment of Dr. L. L. Shamburger as instructor in post-graduate obstetrics.

Dr. Shamburger is a graduate of the Medical College of Virginia and has seen service in the following positions: Wisconsin General Hospital, at the University of Wisconsin; Obstetrics and Gynecology at Washington University; St. Louis Maternity Hospital; Resident in Obstetrics at University of Tennessee, Memphis General Hospital, Memphis, Tenn., and at Memorial Hospital, Richmond, Va.

Dr. Shamburger's new duties will commence July 1st. His first few days will be devoted to visiting obstetricians throughout the State and to interviewing officials of the Medical Society of Virginia who have had continuing experiences with the post-graduate program conducted by the Medical Society. Following the two weeks' period devoted to these conferences, Dr. Shamburger will be available for lectures before local societies and for clinical lectures and demonstrations. The Department anticipates that in many communities lecture-series, similar in character to the lecture-clinics formerly conducted by Dr. M. E. Lapham, will be desired. Local societies interested in sponsoring such lecture-clinics are invited to so notify the Department.

The Department feels that the Medical Society of Virginia is fortunate that arrangements have been completed to continue the post-graduate work under the cooperative program that embraces the interest and support of the Medical College of Virginia, the Department of Medicine of the University of Virginia, and the State Department of Health, all working under the general direction of the Medical Society of Virginia. The Extension Division of the University of Virginia has been retained as the Executive Agent.

Communications concerning arrangements for lectures and clinics should be addressed to the Extension Division, Box 1487, University Station, Charlottesville, Virginia.

G. B. ZEHMER,
Executive Secretary.

Proceedings of Societies

The Fourth District Medical Society

Held its annual regional meeting at Waverly, Va., on May 26th, with Dr. H. E. Whaley of Victoria, President, presiding.

Dr. Herbert C. Jones of Petersburg, discussed "The Recent Advances in Urology," as he noted them upon his attendance at the A. M. A., in Kansas City; Dr. T. S. Jennings of Waverly, gave a report on recent successful experiences in "The Treatment of Acute Unilateral Lobar Pneumonia" with artificial pneumothorax in four cases; Dr. W. M. Bowman of Petersburg, read a paper on "Prostatic and Seminal Vesical Smears as a Reliable Test and Cure of Neisserian Infection"; Dr. Allen Barker of

XUM

Petersburg, presented a paper on "Bronchiectasis: Its Diagnosis and Treatment," illustrated with X-ray films; and Dr. W. H. Higgins of Richmond, invited guest, spoke on "Bedside Diagnosis of Acute Coronary Occlusion and Its Treatment."

The following officers were elected for the ensuing year: President, Dr. Tom G. Hardy, Farmville; vice-presidents, Dr. J. L. Hamner, Mannboro, and Dr. W. W. Wilkinson, La Crosse; secretary-Treasurer, Dr. C. E. Martin, Emporia; and Dr. Wright Clarkson, Petersburg, chairman of the Steering Committee. Both of the latter officers were re-elected.

The next meeting will be held in Farmville on July 21st.

Norfolk County Medical Society.

At the annual meeting of this Society on June 1st, Dr. Walter B. Martin of Norfolk, succeeded to the presidency and the following officers were elected: President-elect, Dr. Frank H. Redwood, Norfolk; vice-president, Dr. Thos. E. Oast, Portsmouth; and secretary-treasurer, Dr. Lockburn B. Scott, Norfolk. This makes Dr. Scott's eighteenth consecutive year in his position. At this meeting, delegates and alternates were also elected to the Staunton meeting of the State Society.

Lynchburg Academy of Medicine.

At the regular meeting of the Academy on June 1st, Dr. J. B. Nicholls, of Catawba Sanatorium, presented a paper on "Collapse Therapy" which was illustrated with lantern slides and interestingly discussed.

Drs. Harold Lee Riley, Jr., and David Lemuel Harrell, Jr., both of the Staff of the State Colony for Epileptic and Feebleminded, were elected to membership. Delegates and alternates to the State Society meeting were also named at this time.

Dr. J. Henry Rawlings and Dr. John Hundley, Jr., are president and secretary, respectively. There will be no more meetings of the Academy until September.

Richmond Academy of Medicine.

At the meeting of the Academy on May 26th, Dr. Roshier W. Miller, presiding, Dr. Edwin P. Lehman and Dr. J. Edwin Wood, both of the University of Virginia Medical School, were the guest speakers. The usual buffet supper followed this meeting. The next meeting will be held in September.

Nansemond County Medical Society.

At the meeting of this Society on May 19th, Dr. J. B. Dalton, of Richmond, was the guest speaker. His subject was "Evaluation of Factors Involved in the Healing of Infected Bone." This address was accompanied by lantern slides and was both instructive and interesting.

Dr. E. C. Joyner and Dr. William F. Wild, both of Suffolk, are president and secretary, respectively.

News Notes

Commencement Exercises of Virginia Medical Schools.

MEDICAL COLLEGE OF VIRGINIA

The annual commencement exercises of the College, held may 30th through June 2nd, were opened with the Student Night Dance. On Sunday, the commencement sermon was by Rev. Solon B. Cousins, D. D., of the Second Baptist Church. Registration for the alumni began on Monday and a luncheon was held at noon, followed by the business meeting, at which time Mr. L. C. Bird, of Richmond, was elected President of the Alumni Association. Other officers are: Vice-presidents, Dr. Joseph L. Miller, Thomas, W. Va., Dr. John Bell Williams and Miss Alice Lacy of Richmond; treasurer, Dr. T. Dewey Davis, Richmond; and secretary, Dr. Lewis E. Jarrett, also of Richmond.

The annual Alumni Dinner was held that night at the John Marshall Hotel. The regular buffet luncheon to the Board of Visitors, Faculty, Alumni and Senior classes was held on Tuesday at Cabaniss Hall. The final exercises were held at the Mosque at 8:00 P. M., when diplomas were awarded to 129 students—seventy-three in medicine, twenty-three in dentistry, nine in pharmacy, twenty-two in nursing, and two receiving master of science degrees in chemistry. An honorary degree of Doctor of Science was conferred upon Dr. Lawrason Brown, Consulting

Physician to Trudeau Sanatorium, Saranac Lake, N. Y. The commencement address was delivered by Dr. George Frederick Zook, President of the American Council on Education. These exercises were followed by a reception and dance at the John Marshall Hotel.

The following were graduates in medicine with hospital appointments:

MEMORIAL HOSPITAL, RICHMOND—Drs. Robert Richardson Eason, Richmond; William Hughes Evans, Richmond; William Yates Garrett, Richmond; Edgar Willis Lacy, Jr., Richmond; Frances Elizabeth Noblin, South Boston; Leroy Smith, Richmond; Hilda Jane Walters, Christiansburg; and George Austin Welchons, Richmond.

TUCKER SANATORIUM, RICHMOND—Dr. Oscar Kantor Diamond, Yonkers, N. Y.

GRACE HOSPITAL, RICHMOND—Drs. Homer Earle Ferguson, Rocky Mount; and Robert Hartwell Mitchell, Aulander, N. C.

STUART CIRCLE HOSPITAL, RICHMOND—Drs. William Wallace Fuller, Norfolk; Frank Noera Pole, Hot Springs; and Spotswood Robins, Richmond.

SAINT LUKE'S HOSPITAL, RICHMOND—Drs. Marvin Russell Houck, Lewisburg, W. Va.; and Charles William Reavis, Raleigh, N. C.

SHELTERING ARMS HOSPITAL, RICHMOND—Drs. Abraham Meyer Jacobson, Richmond; and Aquilla Richard Johnston, Saint George, S. C.

RETREAT FOR THE SICK HOSPITAL, RICHMOND—Drs. Carl Wise Meador, Richmond; Milton Salasky, Norfolk; and William Angle Young, Roanoke.

SAINT ELIZABETH'S HOSPITAL, RICHMOND—Dr. John Henry Murry, Pequea, Pa.

CENTRAL STATE HOSPITAL, PETERSBURG—Dr. Robley Curtis Allison, Delton.

LEWIS-GALE HOSPITAL, ROANOKE—Drs. Homer Bartley, Hellier, Ky.; and James William Elliott, Winfall.

SHENANDOAH HOSPITAL, ROANOKE—Dr. Newton Ashford Beeton, Roanoke.

JEFFERSON HOSPITAL, ROANOKE—Dr. Elbert White Dodd, Jr., Buchanan.

ROANOKE GENERAL HOSPITAL, ROANOKE—Dr. Lewis Alan Micou, Farmville.

NORFOLK PROTESTANT HOSPITAL, NORFOLK—Drs. Paul Kiser Candler, Lebanon; and Arthur LaGrange Van Name, Jr., West Point.

HOSPITAL OF ST. VINCENT DE PAUL, NORFOLK—Dr. John Hobart Judson, Norfolk.

RAIFORD HOSPITAL, FRANKLIN—Dr. Thomas Addison Morgan, Gladys.

UNITED STATES MARINE HOSPITAL, STAPLETON, STATEN ISLAND, N. Y.—Drs. Charles Raymond Arp, Copperhill, Tenn.; and Hosea Dewain Ireland, Pullman, W. Va.

CUMBERLAND HOSPITAL, BROOKLYN, N. Y.—Dr. Ben Bogen, Paterson, N. J.

UNITY HOSPITAL, BROOKLYN, N. Y.—Dr. Manuel Kogan, Brooklyn, N. Y.

BELLEVUE HOSPITAL, NEW YORK, N. Y.—Dr. Richard Wickham Sharpe, Norfolk.

METROPOLITAN HOSPITAL, NEW YORK, N. Y.—Dr. Lewis Shelton Trostler, Brooklyn, N. Y.

ELLIS HOSPITAL, SCHENECTADY, N. Y.—Dr. Malcolm Bouton, Fultonville, N. Y.

SIBLEY MEMORIAL HOSPITAL, WASHINGTON, D. C.—Dr. Clift Palsgrove Berger, Waterford.

GALLINGER MUNICIPAL HOSPITAL, WASHINGTON, D. C.—Dr. Jacob Himi Kress, Thomasville, N. C.

GARFIELD MEMORIAL HOSPITAL, WASHINGTON, D. C.—Dr. Charles Weston Warren, Middleburg.

SAINT MARY HOSPITAL, HOBOKEN, N. J.—Dr. D. D. Brusca, Brooklyn, N. Y.

MONMOUTH MEMORIAL HOSPITAL, LONG BRANCH, N. J.—Dr. Louis Xavier Kolipinski, Washington, D. C.

LOGAN GENERAL HOSPITAL, LOGAN, W. VA.—Dr. Arthur Davidman, Rocky Mount.

SAINT MARY'S HOSPITAL, HUNTINGTON, W. VA.—Dr. Lee Filmore Dobbs, Jr., Wheeling, W. Va.

WHEELING HOSPITAL, WHEELING, W. VA.—Dr. Michael Andrew Gaydosh, Wheeling, W. Va.

CHESAPEAKE AND OHIO HOSPITAL, HUNTINGTON, W. VA.—Dr. Isaiah Ewen Taylor, Hunington, W. Va.

REX HOSPITAL, RALEIGH, N. C.—Drs. Frederick Clinton Goodall, Jr., Bluefield, W. Va.; Rafael Angel Núñez-Hernández, San Jose, Costa Rica, C. A.; and Walter Emerson Vermilya, Clifton Forge.

WATAUGA HOSPITAL, BOONE, N. C.—Dr. Raymond Harris Harmon, Boone, N. C.

HIGHSMITH HOSPITAL, FAYETTEVILLE, N. C.—Dr. Max Koenigsberg, Brooklyn, N. Y.

LOWERY HOSPITAL, SALTVILLE, N. C.—Dr. Robert Hoyle Moorefield, Salisbury, N. C.

XUM

JAMES WALKER MEMORIAL HOSPITAL, WILMINGTON, N. C.—Dr. Samuel Edward Warshauer, Wilmington, N. C.

SAINT JOSEPH'S HOSPITAL, LANCASTER, PA.—Drs. Helen Glover Evans, West Union, W. Va.; and Ila Frances Moser, Morgantown, W. Va.

BRADDOCK GENERAL HOSPITAL, BRADDOCK, PA.—Drs. William Frank McFarland, Keyser, W. Va.; and Ralph George Rohner, Richmond.

LANCASTER GENERAL HOSPITAL, LANCASTER, PA.—Dr. John Gwyn Welch, Drumore, Pa.

CONEMAUGH VALLEY MEMORIAL HOSPITAL, JOHNSTOWN, PA.—Dr. Jack Srulowitz, Brooklyn, N. Y.

UNIONTOWN HOSPITAL, UNIONTOWN, PA.—Dr. Robert Edward Walker, Waynesburg, Pa.

SOUTH BALTIMORE GENERAL HOSPITAL, BALTIMORE, MD.—Dr. Eugene Reese Evans, Dundalk, Md.

FRANKLIN SQUARE HOSPITAL, BALTIMORE, MD.—Dr. William Frederic Fidler, Richmond.

LOS ANGELES COUNTY GENERAL HOSPITAL, LOS ANGELES, CALIF.—Dr. Dorothy Velma Clark, Los Angeles, Calif.

LETTERMAN GENERAL HOSPITAL, SAN FRANCISCO, CALIF.—Dr. Claude Benjamin White, Norfolk.

LAWRENCE AND MEMORIAL ASSOCIATED HOSPITALS, NEW LONDON, CONN.—Dr. Louis De Angelis, New Haven, Conn.

MOUNT SINAI HOSPITAL, HARTFORD, CONN.—Dr. George Irving Sneidman, Richmond.

STATE OF WISCONSIN GENERAL HOSPITAL, MADISON, WIS.—Drs. Edwin Robson Nelson, Manassas, and Robert Berkshire Woodhull, Morgantown, W. Va.

EMORY UNIVERSITY HOSPITAL, ATLANTA, GA.—Dr. Thomas Uriah Vermillion, Athens, W. Va.

Other graduates in medicine were:

Dr. Richard Carroll Neale, Lanesville.

Dr. William Johannes Waihoja, Centre Moriches, L. I., N. Y.

UNIVERSITY OF VIRGINIA, DEPARTMENT OF MEDICINE

The commencement exercises of the University of Virginia began on June 5th and continued through the 9th. Friday was given over to informal reunions and an inspection of the University's new buildings. The annual meeting of the alumni was held on Saturday and a barbecue was given that afternoon, followed by the annual baseball game between varsity and the alumni. The dedication of the new engineering building also took place on Saturday. The baccalaureate sermon on Sunday was delivered by Dr. Edward N. Calisch of Beth Ahaba Synagogue, Richmond.

An organ recital by Professor Harry Rogers Pratt was heard that evening in the McIntire Amphitheatre. On Monday a reception was given by President and Mrs. John Lloyd Newcomb.

Dr. Douglas S. Freeman, Richmond, spoke at the graduation exercises which were held at 5:30 on Tuesday. Degrees were awarded to more than four hundred. In the evening there was a reception for the graduates and the final ball.

The following are graduates in medicine, with their hospital appointments:

UNIVERSITY OF VIRGINIA HOSPITAL, UNIVERSITY—Drs. Richard Butler Ferguson, Jr., Clinton, S. C.; Lucian Minor Ferris, Vicksburg, Miss.; Harry Carrington Fleming, Grafton, W. Va.; Lyle Jamesson Hansbrough, Front Royal; Frank Aloysius Kearney, II, Phoebus; Robert William McCullough, Lynchburg; Charles Grandison Pearson, Norfolk; and John Witten Yost, Jr., Williamson, W. Va.

MARTHA JEFFERSON HOSPITAL, CHARLOTTESVILLE—Dr. Frederick Herzel Yorkoff, Farmville.

MEMORIAL HOSPITAL, RICHMOND—Dr. Edwin Lawrence Kendig, Jr., Victoria.

JOHNSTON-WILLIS HOSPITAL, RICHMOND—Dr. Johnnie Armstrong McCullough, Lynchburg.

ST. ELIZABETH'S HOSPITAL, RICHMOND—Dr. John Watson Morris, Winston-Salem, N. C.

ST. VINCENT'S HOSPITAL, NORFOLK—Dr. Solomon Bear Mizroch, Norfolk.

NORFOLK PROTESTANT HOSPITAL, NORFOLK—Dr. Charles Willis Steel, Jr., Grafton, W. Va.

ELIZABETH BUXTON HOSPITAL, NEWPORT NEWS—Drs. Nowell Darden Nelms, Hampton; and Walton Herbert Springall, University.

JEFFERSON HOSPITAL, ROANOKE—Dr. Glenn Ward Phipps, Galax.

VIRGINIA MASON CLINIC, SEATTLE, WASH.—Drs. John Edwin Adams, Lynchburg; Joseph Hawkins Low, Jr., Welcome; and Alfred Littlefield Smith, University.

BALTIMORE CITY HOSPITAL, BALTIMORE, MD.—Drs. John Thompson Brown Ambler, Roanoke; and Leon Richard Culbertson, Norton.

UNION MEMORIAL HOSPITAL, BALTIMORE, MD.—Drs. Frederick Hardy Bowen, Jacksonville, Fla.; George Wray Morse, Portsmouth; and John Keller Owen, University.

CHURCH HOME AND INFIRMARY, BALTIMORE, MD.—Dr. Samuel Walter Huddle, Rural Retreat.

SINAI HOSPITAL, BALTIMORE, MD.—Dr. Daniel David Klaff, Danville.

JOHNS HOPKINS HOSPITAL, BALTIMORE, MD.—Dr. Robert Burwell Nelson, Jr., Winchester.

GALLINGER MUNICIPAL HOSPITAL, WASHINGTON, D. C.—Dr. Ellis April, Ballston.

U. S. PUBLIC HEALTH SERVICE, WASHINGTON, D. C.—Drs. John Osborne Fulenwider, Jr., Monroe, N. C.; and William Eugene Lynn, Lovettsville.

HIGHSMITH HOSPITAL, FAYETTEVILLE, N. C.—Dr. Robert Manfred Caldwell, Galax.

PARKVIEW HOSPITAL, ROCKY MOUNT, N. C.—Dr. Jean McNutt Martin, Middlebrook.

NORTH WHEELING HOSPITAL, WHEELING, W. VA.—Dr. William Edward Bippus, Wheeling, W. Va.

CINCINNATI GENERAL HOSPITAL, CINCINNATI, OHIO—Dr. Julian Ruffin Beckwith, Petersburg.

LUTHERAN HOSPITAL, CLEVELAND, OHIO—Dr. Forest Gilkeson Harper, Staunton.

LAKESIDE HOSPITAL, CLEVELAND, OHIO—Dr. Edward Scott Ray, Ashland.

JACKSON MEMORIAL HOSPITAL, MIAMI, FLA.—Dr. Carrington Leonard Booker, Lottsburg.

DUVAL COUNTY HOSPITAL, JACKSONVILLE, FLA.—Dr. Oswald Massena Weaver, University.

MASSACHUSETTS GENERAL HOSPITAL, BOSTON, MASS.—Dr. John Randolph Tucker Carmichael, Kyrock, Ky.

TOURO INFIRMARY, NEW ORLEANS, LA.—Dr. Pembroke Thomson Grove, Summit Point, W. Va.

ORANGE MEMORIAL HOSPITAL, ORANGE, N. J.—Drs. James Lucius Davis, Raccoon Ford; and Eric Twachtman, Greenwich, Conn.

VANDERBILT UNIVERSITY HOSPITAL, NASHVILLE, TENN.—Drs. Carrington Harrison, Danville; and Josiah Thomas Showalter, Cambria.

EMORY UNIVERSITY HOSPITAL, EMORY UNIVERSITY, GA.—Dr. John Calhoun Risher, University.

LANKENAU HOSPITAL, PHILADELPHIA, PA.—Dr. Alexander Armstrong St. Clair, Bluefield, W. Va.

CUMBERLAND HOSPITAL, BROOKLYN, N. Y.—Dr. Meyer Steingold, Norfolk.

STRONG MEMORIAL HOSPITAL, ROCHESTER, N. Y.—Dr. William Norman Thornton, Jr., Courtland.

Dr. Marion Sumpter Love, Danville, was also a graduate in medicine.

Staunton Meeting of State Society.

Arrangements are getting in shape for our sixty-seventh annual meeting in Staunton, October 13th, 14th and 15th, and all members are urged to include attendance upon the meeting as part of their vacation. An interesting scientific program is being arranged and the president, Dr. P. St. L. Moncure of Norfolk, has invited Dr. William B. Haggard, past president of the American Medical Association and professor of Clinical Surgery at Vanderbilt University, Nashville, to be the speaker on the opening evening, and Dr. Lloyd W. Ketron, associate professor of dermatology at Johns Hopkins University, as the speaker on a subject in his speciality, for a later session.

The Endocrine Diseases was decided upon as the subject of the symposium, this year, and this has been sub-divided as follows:

1. The endocrines in medicine—Dr. Edward L. Alexander, Newport News.
2. The endocrines in obstetrics and gynecology—Dr. C. J. Andrews, Norfolk.
3. The endocrines in surgery—Dr. Edwin P. Lehman, University of Virginia.

Cards were sent all members, about the first of June, requesting that those who wish to present papers at the meeting send titles with abstracts to the Society's office by July 15th. Please bear this date in mind, as the Program Committee wishes to line up the program before going on vacations.

We are advised that several have signed up for scientific exhibits and the commercial exhibits promise to be up to a good standard in number as well as quality.

Don't forget the dates and plan to be in Staunton for the meeting—October 13th, 14th and 15th.

The Virginia Pediatric Society

Held its first clinical meeting in the amphitheatre of Cabaniss Hall, Richmond, on May 29th, with an attendance of over thirty members and several visitors. Luncheon was served between the morning and afternoon sessions. The feature of the meeting was a symposium on Respiratory Infections in Children, in which papers were presented by Drs.

XUM

W. P. McDowell and F. D. Wilson of Norfolk, Dr. Samuel Newman of Danville, Dr. W. B. McIlwaine of Petersburg, and Drs. A. C. Broders and Paul Kimmelstiel of the Medical College of Virginia. Drs. J. M. Bishop of Roanoke, C. E. Conrad of Harrisonburg, and Thomas Oast of Portsmouth, by invitation opened the discussion on the symposium and then a general discussion ensued.

The members were so pleased with these sessions that it was decided to have a clinical meeting each spring and to have a business session and election of officers at the time of the State Society meeting, as in the past. Dr. Basil B. Jones is president, Dr. John S. Weitzel, vice-president, and Dr. W. Ambrose McGee, secretary-treasurer. All of this year's officers are of Richmond.

Doctors Among Delegates at State Democratic Convention.

Dr. George H. Steuart, Ottoman; Dr. D. Lane Elder, Hopewell; and Drs. W. D. Kendig and K. S. Freeman, Kenbridge, were among the doctors elected to the State Democratic Convention in Norfolk on June 16th. Dr. M. C. Oldham, Lancaster, and Dr. C. T. Peirce, Nuttsville, were listed among the alternates.

Dr. Edwin E. Barksdale,

Who has been connected with the University of Virginia Hospital since his graduation from that school in 1933, located the first of July in Danville, Va., with offices at 703 Masonic Temple. He will limit his work to dermatology and syphilology in which subjects he has been working for the past two years with Dr. D. C. Smith at the University.

Dr. Robert C. Bryan

Has returned to his home in Richmond, Va., after a visit of some length to Tucson, Arizona.

Dr. Cameron F. McRae,

Class of '35, Medical College of Virginia, who interned at the Chesapeake and Ohio Hospital, Clifton Forge, Va., has located for general practice at Bat Cave, N. C.

Potato Blossom Festival.

Just before the celebration of the second Potato Blossom Festival on the Eastern Shore of Virginia, the last of May, *The Eastern Shore News* of Onancock published a most creditable eight section paper of 64 pages, devoted to the history and activities of "The Shore." Though delightful reading for any one, doctors will be especially interested in the history of the Northhampton-Accomack Memorial Hospital at Nassawadox, written by Dr. W. Carey Henderson. This hospital, opened to receive patients on August 17, 1928, has an excellent record and is the only hospital serving the residents of Accomac and Northhampton Counties.

Another interesting story in this paper is that of the Onancock Rotary Club, which was prepared by Dr. John W. Robertson of Onancock, organizing chairman of this Club.

Married.

Dr. Guy Winston Horsley, Richmond, Va., and Miss Mary Clare Wright, Petersburg, Va., June 10th.

Dr. Jefferson Bishop Kiser and Miss Margaret Mahood Johnston, both of Emporia, Va., June 1st.

Dr. William Rollan Hill, class of '34, University of Virginia, and Miss Sherrard Pierson Parrish of Fluvanna County and Richmond on May 16th.

Dr. Chester L. Riley, class of '34, Medical College of Virginia, and now affiliated with Memorial Hospital, Richmond, and Miss Verna Parker of Powhatan, Va., June 8th.

Dr. Charles W. Purcell,

For the past year resident on Pediatrics at the University of Virginia Hospital, opened offices on the first of this month in the Masonic Temple Building, Danville, Va., and will be engaged in the practice of pediatrics in that city. Before returning to the University in 1935, Dr. Purcell had served a rotating internship at Orange Memorial Hospital, Orange, N. J., and later had a residency in medicine and pediatrics at the New York Post-Graduate Hospital for a year.

Medical College of Virginia News.

Dr. William B. Porter, professor of medicine, Dr. C. C. Coleman, professor of neurosurgery, and Dr. Lee E. Sutton, Jr., dean of the school of medicine, attended the meetings of the Seaboard Medical Association on a cruise to Bermuda. Dr. Coleman and Dr. Porter were guest speakers on the program of the association.

The sixth annual postgraduate clinic for Negro physicians was held at the Saint Philip Hospital and the outpatient clinic, June 15th-27th. Thirty-

two matriculated for the clinic. The guest speaker was Dr. Peter Marshall Murray of New York. This work is subsidized by the General Education Board of New York.

Dr. J. C. Flippen, dean of the school of medicine, University of Virginia, was a recent college visitor.

Dr. Richard A. Deno of Bowling Green, Ohio, has accepted a position in the school of pharmacy as instructor in pharmacy and pharmacology for the session 1936-37.

Dr. Harvey B. Haag, professor of pharmacology, read a paper on "Further Observations on the Pigeon Method of Standardizing Digitalis," at the annual meeting of the American Association for the Advancement of Science, June 16th-18th, at Rochester, N. Y.

News from Jefferson Medical College,

The 111th commencement was held on June 5, 1936, the valedictory address being delivered by Dr. John H. Finley, Associate Editor of *"The New York Times."* The graduating class numbered 133, bringing the total number of graduates to 16,175. The graduates represented seventeen different States and insular possessions.

The annual alumni dinner, on June 4th, was attended by over 500 alumni. Alumni Day and Ex-Internes' Day Clinics were held on June 3rd and 4th, in the Clinical Amphitheatre of the Jefferson Hospital. The class of 1936 presented a portrait of Dr. P. Brooke Bland, Professor of Obstetrics, to the College on March 26th.

The following promotions and appointments in the teaching corps have been made during the past session: David M. Davis, M. D., Professor of Genito-Urinary Surgery; John B. Flick, M. D., Associate Professor of Surgery; Henry K. Mohler, M. D., Associate Professor of Therapeutics; Lewis C. Scheffey, M. D., Associate Professor of Gynecology; Henry K. Seelaus, M. D., Assistant Professor of Surgery; Harold L. Stewart, M. D., and David R. Morgan, M. D., Assistant Professors of Pathology; Adolph A. Walking, M. D., Assistant Professor of Surgery; William H. Schmidt, M. D., Assistant Professor of Physical Therapy in the Department of Neurology; Roy W. Mohler, M. D., John B. Montgomery, M. D., Charles Lintgen, M. D., and William J. Thudium, M. D., Associates in Gynecology; Andrew J. Ramsey, Ph. D., Associate in Histology and Embryology.

Medical Society of the State of North Carolina.

At the annual meeting of the Society in Asheville, recently, Dr. Charles F. Strosnider of Goldsboro succeeded to the presidency and Drs. Charles A. Woodard, Wilson, and John F. Brownsberger, Asheville, were elected vice-presidents. Dr. Louis B. McBrayer, Southern Pines, was re-elected secretary, and Winston-Salem was selected as the 1937 place of meeting.

Post-Graduate Cruise to Bermuda.

Members of the Seaboard Medical Association of Virginia and North Carolina and of the Virginia Pharmaceutical Association enjoyed a cruise to Bermuda from June 14th to 19th on the liner *"Reliance."* The Seaboard Association arranged for post-graduate lectures on this occasion and the following were the instructors:

Dr. Wm. B. Porter, Richmond, medicine; Dr. Hubert A. Royster, Raleigh, surgery; Dr. A. R. Shands, Jr., Durham, orthopedics; Dr. Gabriel Tucker, Philadelphia, otolaryngology; Dr. Julian M. Ruffin, Durham, gastroenterology; Dr. Claude C. Coleman, Richmond, neurology; Dr. Robert A. Ross, Durham, obstetrics-gynecology; Dr. James B. Sidbury, Wilmington, pediatrics.

Much credit is due Dr. Clarence Porter Jones, Newport News, secretary of the Seaboard Association, for the success of this cruise.

Dr. George A. Reynolds,

Class of '34, Emory University, Atlanta, who has just completed two years of internship, one at the Medical College of Virginia Hospitals in Richmond and one at the Norfolk (Va.) General Hospital, located at Bowling Green, Va., the latter part of June. He will be engaged in general practice.

Dr. J. C. Coulter,

Charlottesville, Va., was named grand junior warden of the Virginia Odd Fellows at its annual session held recently in Charlottesville.

Dr. R. L. Raiford

Was elected one of the directors of the Lions' Club of Franklin, Va., at its annual meeting held in June.

XUM

Dr. J. Lawson Cabaniss,

Class '32, University of Virginia, formerly of Gill Memorial Hospital, in Roanoke, Va., has returned from New York City where he recently completed a Postgraduate Course at the New York Eye and Ear Infirmary. He will be located at 816 Colonial Bank Building, Roanoke, for the practice of eye, ear, nose and throat.

Dr. Harold L. Riley, Jr.,

Of the Medical College of Virginia, class of '30, who has been on the resident staff of the State Colony for Epileptics and Feeble-minded since 1932, is locating in Lynchburg, Va., early this month and will have offices at 811 Church Street, for the general practice of medicine.

Dr. James W. Tankard,

Recently CCC Camp Surgeon at South Hill, Va., and a member of the Medical Reserve Corps of the Army, left July 1st for the Buffalo, N. Y., General Hospital, where he will have a position as assistant in surgery. Dr. Tankard is a native of Franktown, Va., and graduated in medicine from the University of Pennsylvania, following which he interned at the Philadelphia General Hospital.

Dr. William I. Prichard,

Formerly of Petersburg, Va., who has been in government work for sometime, is now on the medical staff of the Western State Hospital.

Dr. Edward W. Perkins, Jr.,

Class of '33, Medical College of Virginia, who practiced for a time at his former home in Petersburg, Va., after completing his internship at Stuart Circle Hospital, Richmond, Va., is now practicing in Sumter, S. C.

The American Gynecological Society,

Which met at Absecon, N. J., the latter part of May, elected the following officers for the ensuing year: President, Dr. Frederick J. Taussig, St. Louis; vice-presidents, Drs. George W. Kosmak of New York City, and Sidney A. Chalfant of Pittsburgh; secretary, Dr. Richard W. TeLinde, Baltimore; and treasurer, Dr. William C. Danforth (re-elected), Evanston, Ill. Dr. M. P. Rucker of Richmond, who attended the meeting, is the only Virginia member of the Society.

Warning for the Fourth of July!

A study of Fourth of July fireworks accidents in connection with the 1935 celebration of Independence Day, made by the American Museum of Safety in cooperation with the National Society for the Prevention of Blindness, disclosed a total of 6,940 injuries which were serious enough to be mentioned in the press. Among these were twenty-four deaths, 539 eye injuries, and fifty-seven cases of loss of sight, the greatest damage being among children.

These statistics should be all the warning necessary to make each individual feel his or her responsibility for a "safe and sane" observance of "the Fourth."

Medical Society of the District of Columbia.

At the annual meeting of this Society in May, Dr. William M. Sprigg was elected president and Dr. Coursen B. Conklin was re-elected secretary. Both officers are of Washington.

Guests of W. Va. State Association.

Dr. Lawrence T. Royster of the University of Virginia and Dr. Warren T. Vaughan of Richmond were two of the guests of honor at the annual meeting of the West Virginia State Medical Association in Fairmont, early in June.

Dr. Lester J. Dugan,

Class of '34, Georgetown University Medical School, recently at Clarendon, Va., is now with the CCC Camp D 2, at Goldsboro, Md.

Deaths of Physicians in 1935.

The Journal of the American Medical Association, according to its issue of April 18, published 3,491 obituaries of physicians during 1935. In these, the average age at death was 64.2 as compared with 64.3 in 1934. Heart disease was again the leading cause of death, being specified in 1,345 cases. Pneumonia, with 360 deaths, was the second most frequent cause. One hundred and twenty physicians died as a result of accidents and forty-seven deaths were reported as suicide. There were five homicides.

Dr. John R. Blair

Has returned to his home in Richmond, Va., after an absence of sometime on account of his health, and has resumed his surgical practice, with offices at 302-303 Grace American Bank Building.

The Southern Society of Clinical Surgeons

Held its annual meeting in New York City on June 4th and 5th, under the presidency of Dr. William P. Fite, of Muskogee, Okla., an alumnus of the University of Virginia, Department of Medicine. The program for the first day was arranged by the Presbyterian Hospital and on the second day by the New York Hospital. Virginians attending this meeting were Drs. I. A. Bigger, John S. Horsley, Jr., Harry J. Warthen and Carrington Williams of Richmond, Dr. John M. Nokes of University of Virginia, Dr. Arthur M. Smith of Charlottesville. Ann Arbor, Mich., was selected as the 1937 place of meeting and the following officers elected: President, Dr. J. M. T. Finney, Jr., Baltimore; vice-president, Dr. I. A. Bigger, Richmond; and secretary-treasurer, Dr. Wm. Perrin Nicolson, Jr., Atlanta.

On the closing day of the meeting, a number of the surgeons including Drs. Bigger and Nokes from Virginia, left on the steamer *St. Louis* for a European trip of several weeks.

Dr. Waverly R. Payne,

Newport News, Va., was one of the candidates who successfully passed the examination for certification by the American Board of Obstetrics and Gynecology at its meeting in Kansas City, Mo., in May.

Dr. Robert A. Ross,

Of the department of Obstetrics and Gynecology at Duke University, Durham, N. C., was the guest speaker before the Norfolk County Medical Society at its meeting on May 25th. Following the meeting, Dr. C. J. Andrews, chairman of the Obstetrics Section of the Society, invited the members to the Town Club to meet Dr. Ross.

Dr. J. P. Scott,

Class of '34, Medical College of Virginia, who has been resident physician at the John Russell Hospital in Bedford, Va., for sometime, is locating the first of July at Martinsville, Va. He will have offices in Chief Tassel Building, and will be engaged in general practice.

Health Officer of Fairfax County.

Dr. Edward M. Holmes, Jr., has been appointed health officer of Fairfax County, Va., with headquarters at Fairfax, succeeding Dr. A. L. Carson, Jr., now assistant to Dr. B. B. Bagby in the Child Health Bureau of the State Department of Health. Dr. Holmes is a native of Norfolk, Va., and received his medical training at Georgetown University and has recently completed a course in public health work at Johns Hopkins University.

The First International Conference on Fever Therapy,

Originally scheduled for the end of September, 1936, has been postponed because of numerous requests, to permit more time for the preparation of material. The new dates set for this conference are March 30 to April 2, 1937, and the sessions will be held at the College of Physicians and Surgeons, Columbia University, New York City.

For further information, address the General Secretary, Dr. William Bierman, 471 Park Avenue, New York, N. Y.

Dr. G. R. Maloney,

Richmond, Va., has been named president of the Manchester Lions Club for the coming year, having been installed at the meeting on June 19th.

Dr. Rupert W. Powell,

Class of '35, Medical College of Virginia, who has been interning for the past year at Shenandoah Hospital, Roanoke, Va., opened offices on the first of July at 209 Medical Arts Building, that city, for the practice of internal medicine and cardiology.

Doctors Hold Civic Positions.

As a result of recent elections in Virginia, Dr. G. G. Crawford was re-elected mayor of Strasburg, Dr. F. H. Lukin of Pamplin, Dr. C. R. Anderson of Winchester, and Dr. J. Fulmer Bright of Richmond. Some of the doctors elected to councilmanic positions are: Dr. Courtney Edmond in Clifton Forge, Dr. W. L. Williams in Brookneal, Dr. A. Chambers Ray, Jr., in Ashland, and Dr. J. W. Reed, in Norfolk.

Dr. Stuart McGuire,

Richmond, was elected chairman of the board of visitors of the Medical College of Virginia, at its meeting on June 1st, succeeding the late Mr. William T. Reed.

Dr. Robley D. Bates, Jr.,

Who graduated from the Medical College of Virginia in 1934, after a year's service at the Hospital for Women in Baltimore, Md., has been appointed

XUM

full-time resident in its Medical Department, effective July 1st.

Dr. George M. Caldwell

Has been appointed Assistant Physician in the Medical Department of The Greenbrier, White Sulphur Springs, W. Va. Dr. Caldwell was graduated from the University of Virginia, Medical Department, in 1935. He served as Resident Physician in the Chesapeake and Ohio Hospital, Clifton Forge, Va., and in the Hospital of the Tennessee Coal, Iron and Railway Company at Birmingham, Ala.

Dr. Guy Hinsdale,

Medical Director at the Greenbrier Hotel, White Sulphur Springs, W. Va., sailed May 30th on the "*S. S. Franconia*" for England and will return in July. While in London, Dr. Hinsdale expected to attend a meeting of the International Society of Medical Hydrology of which he is one of the American representatives. He has been for many years a Fellow of the Royal Society of Medicine.

Dr. K. K. Wallace,

Class of '32, Medical College of Virginia, who for the past three years has been limiting his practice to radiology, with offices in the Norfolk, Va., Protestant Hospital, is spending some time in New York City where he is taking post-graduate work in his specialty.

Speak Before Old Dominion Medical Society.

At the annual meeting of the Old Dominion Medical Society (the State Negro medical organization) in Petersburg, Va., June 9th and 10th, several members of the Medical Society of Virginia, by invitation, presented papers. They were: Drs. Allen Barker and Wright Clarkson of Petersburg, Dr. J. A. Proffitt of Piedmont Sanatorium at Burkeville, Dr. Charles W. Scott of Newport News, and Dr. Thomas Wheeldon of Richmond.

Dr. Paul J. Bundy,

Who since graduation from the Medical College of Virginia in 1931 has been engaged in industrial work in Virginia and West Virginia, is now at Dante, Va., where he is a member of the medical staff of the Clinchfield Coal Corporation.

Dr. W. E. Vest Honored.

At the commencement exercises of the College of William and Mary, Williamsburg, Va., early in June, Dr. Walter E. Vest, Huntington, W. Va., former Virginian, was one of six to be presented by President Bryan with a medallion for distinguished alumni service.

Dr. Ayer C. Whitley,

Class of '35, Medical College of Virginia, has accepted an appointment for a year as resident physician in the Meriden Hospital, Meriden, Conn.

Dr. Frank A. Strickler,

An alumnus of the University of Virginia, class of '32, who recently returned from New York City after a service at the Payne-Whitney Psychiatric Clinic, went to St. Albans Sanatorium, Radford, Va., the first of July, where he will be associated with Dr. James King in the practice of neurology and psychiatry and will do both sanatorium and consultant work.

Office Available.

Office for twenty-two years and much of the practice of the late Dr. F. H. Beadles are available for a dermatologist or any practitioner. For information, apply to 113 East Grace Street, or phone 3-2566, Richmond, Va. (*Adv.*)

Obituary Record

Dr. Garland M. Vaden

Died at his home in Capeville, Va., June 20th, following a brief illness. He was born at Mathews Court House, Va., in 1878, and graduated from the former University College of Medicine, Richmond, in 1901. Dr. Vaden had been a member of the Medical Society of Virginia for thirty-four years.

Dr. James Tate Mason,

President of the American Medical Association, died June 20th after a long illness in his own hospital, the Virginia Mason, in Seattle, Washington. A native of Lahore, Orange County, Virginia, he received his medical degree from the University of Virginia in 1905. Dr. Mason was elected President of the American Medical Association last July and took office in May, despite his illness. His wife and three children survive him.